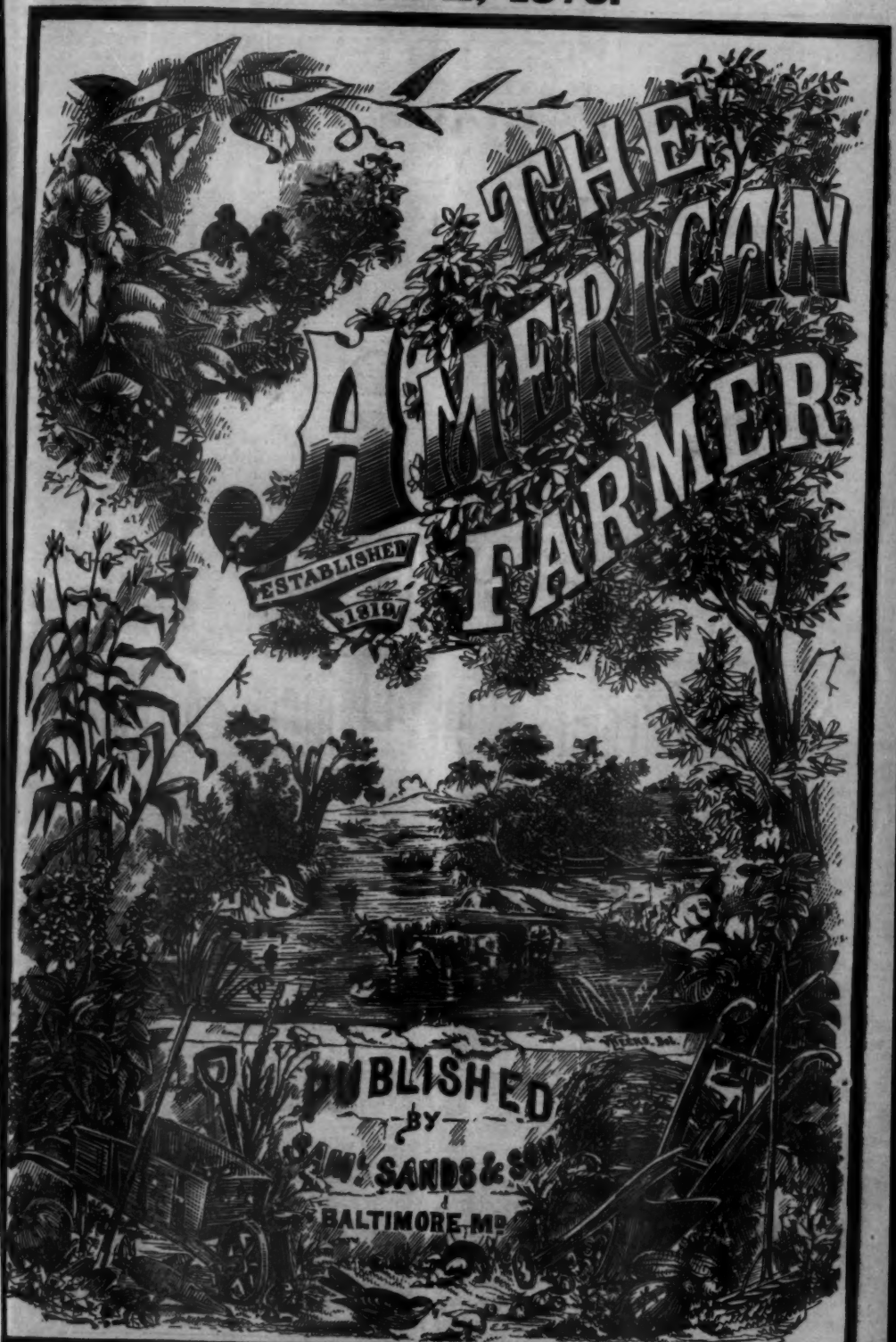
JUNE, 1875.



$1.50 a Year. . . . . {OFFICE, No. 9 NORTH STREET, Near Baltimore st.

TO FARMERS AND GARDENERS.

$1,000 REWARD TO ANY ONE that can find by analysis or otherwise any adulteration whatever in our manufacture of Bone.

No heavy Bones taken out for Bone Black, or other purposes.

The First Manufacturer in America that sold GROUND BONES by WEIGHT.

PURE BONE DUST AND

BONE MEAL

from Slaughter-house Bones, twenty-five years the standard for purity and excellence.

CHEMICAL LABORATORY OF P. B. WILSON, No. 32 SECOND STREET, BALTIMORE, July 30, 1873.

Joshua Horner, Jr.—Dear Sir: The following is the result of analysis of a sample of your Bone Dust drawn by myself from a lot of seven tons lying in your warehouse:

Moisture, (deter. at 212° F.)	3.74 per cent.
Organic Matter	40.12 per cent.
Containing—Nitrogen, 4.08; Ammonia 4.95.	
Inorganic Matter	56.14 per cent.
Containing Phosphoric Acid	24.52 per cent.
Containing Bone Phosphate of Lime	53.52 per cent.
Insoluble Matter	2 51 per cent.

This is the BEST SAMPLE OF BONE DUST I CAN FIND IN THE MARKET, and call your especial attention to the LARGE PERCENTAGES OF VALUABLE MATERIAL for the improvement of the soil, and to the SMALL PERCENTAGES of moisture and insoluble matter.

Respectfully, etc, P. B. WILSON, *Analytical and Consulting Chemist.*

PREPARED FOR DRILLING, AND PACKED IN BAGS, 167 LBS. EACH, AT $45 PER TON. DISSOLVED OR VITRIOLIZED BONE, $48 PER TON. BONE ASH, GROUND AND DISSOLVED, $42 AND $48 PER TON. FARMERS' SUPPLIES.

JOSHUA HORNER, JR. & CO.

54 S. Gay Street, 178 Forrest Street and Corner Chew and Stirling Streets, BALTIMORE, MD.

Sands' Farmers and Planters' Agency.

Referring to our Advertisement elsewhere, offering to purchase and ship for our friends

All Kinds of Fertilizers, &c.

we also call attention to our facilities for the selection and forwarding of Every Description of

Agricultural Implements and Machinery,
Portable Steam Engines and Boilers,
Saw and Grist Mills, &c.,
Wagons, Carriages, Buggies, &c.

Likewise

FRUIT AND ORNAMENTAL TREES, SHRUBS AND PLANTS; FIELD, GARDEN AND FLOWER SEEDS.

ALL KINDS OF FARM SUPPLIES.

We also offer to select and have shipped

IMPROVED LIVE STOCK,

CATTLE, HORSES, SHEEP, SWINE and POULTRY. In this Department we buy only from breeders of established reputation of the several kinds, and cannot undertake to procure ordinary farm stock, such as draft horses, milch cows, &c. In this vicinity great attention is paid to some particular breeds of stock, and specimens can be had here which are nowhere to be surpassed.

As in all transactions we operate for the purchaser, our terms must necessarily be

CASH (or its equivalent.)

Sam'l Sands & Son,

EDITORS AND PUBLISHERS AMERICAN FARMER,

No. 9 North St., Baltimore, Md.

THE

AMERICAN FARMER.

"O FORTUNATOS NIMIUM SUA SI BONA NORINT
"AGRICOLAS." . . . . . *Virg.*

PUBLISHED BY SAML. SANDS & SON, BALTIMORE, MD.

VOL. IV.—No. 6.] JUNE, 1875. [NEW SERIES.

Science Applied to Agriculture.

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We cannot, however pass over certain matters in Professor Stockbridge's paper, as the information published is not complete without additional reference to it—and we do this the more readily, as it will show the difference between the results of Agricultural College education in Georgia and Massachusetts, and we might add, in some few other States, and what is manifested in a similar institution nearer home, as has been recently shown. Professor Stockbridge, after clearing the way as to topics, proceeds to give the reasons for the experiments he has been making for some seven or more years, which show the zeal and devotion that actuates the true disciple of science, who feels the responsibility of his high position, not only to the immediate institution with which he is associated, but to the students under his charge, and to the people of the State, for whom his investigations are to have an important influence in the future, in the cheapening of food necessary for the farmer's family, as well as to the beasts of the field which are committed to his care. He says:

"I come now to the matter of the experiments at the College, and I will give you some of the reasons why those experiments were instituted. In the first place, they were instituted, as a matter of course, because we wanted to learn something, and because we wanted to learn something about a matter of which practical men, whatever were their opinions or their ideas, knew really but very little; and, so far as that matter was concerned, scientific men knew practically nothing. That was the first reason. The next was, we had gathered together a large company of young men (students,) and we wanted to train them in relation to their powers of observation; we wanted to teach them to experiment; we wanted them to participate in the experiments that were being carried on; and, if anything was learned, to go away and scatter that information broadcast, and put it into practice where they should locate. Another reason, coming home to these farmers of the State, was this: the circumstances of our agriculture are such, with this dense population gathered all around our farms, engaged in other pursuits than agriculture—pursuits that make no food, and looking to the farmers for supplies for their daily sustenance, bringing almost at their doors a good remunerative price (although farmers are grumbling all the time)—I say, the circumstances are such, that the tendency is to take the crops from the farm in their crude state and sell them, leaving very little material on the farm, which, in the form of the refuse of those crops and what we call barn-yard manure, can be put back on the land as food for succeeding crops. The consequence is, that there is a sliding-down scale in the fertility of our farms; and you know, brother farmers, that all through the Commonwealth a large per cent. of our farms have got well down. Now, then, it seemed to be important *that we should find some material to take the place of the exported*

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materials from the farm, which would make food for the crops. We can buy stable and barn-yard manure in our cities, towns and villages, and in that way get *some* of the material back upon our soil; but we can get but little in proportion to what we want, and when we get it, it costs us generally more than it is worth. Manure of the best quality, that we get in our stables, costs from fourteen to eighteen dollars a cord on the land, and that is more than any farmer engaged in general farming can afford to pay. He may possibly afford to pay that price to grow *tobacco* at thirty cents a pound, or some of the special crops of *market-gardening*; but in general farming, we cannot afford to pay that price, and, therefore, we must look further. That was one reason why we tried these experiments, to see if we could find something that would make crops grow, strange as it may seem, without the use of barn-yard manure."

We have here the same views which are presented in Dr. White's report, and to which we had occasion to make some reference in a few remarks we were unexpectedly called upon to make at the last monthly meeting of our State Society, all of which harmonize as to the results which are being produced by science, in such a simple and straightforward manner that he "who runs may read," and be cheered with the prospect of knowing that when he pays his money for a fertilizer in the market, he may be sure that he is getting the worth of it, and that he is not staggering about in the dark, not knowing whether he is ever to see any return for his outlay. Professor Stockbridge set out with determining the fact as to what materials were necessary, and the *quantity* thereof to be applied, to secure an additional yield of twenty-five bushels of corn and its natural proportion of stalk, beyond what the land would produce without any manure—the trial extended to the years 1873 and '74, and included also wheat, rye, oats, potatoes—the result is given in the April No. of the *Farmer*, in which the exact amount required from the fertilizers was *found to be realized almost to the very pound in each case!*

The Professor, after stating this result, said he was not satisfied, "*because farmers were hungry for information*," and so they are everywhere upon this same subject—it is the *great question of the day* with them. In Maryland, Virginia, the Carolinas, Georgia and also at the Southwest, this is the absorbing problem with the agricultural classes, as Prof. S. says it is with those of the East—consequently, he not only wanted to *know* that he was right in his conclusions, but to be able to *prove* it by the experiments of practical farmers, so that it would not go forth to the world that the results were the cunning craft of the scientists, but were substantiated by men of their own stamp, and at other places than the chosen lots of the College farm alone. Consequently he said, "perhaps the result will be different upon different farms, and so he sent to Hadley, to an observing, careful farmer, in the same year, 1873, and said to him, 'I want you to try this experiment. I will bring you the material, and I want you to try it on the poorest piece of land on God's earth that will grow anything,' and he thought he had some on his farm. The farmer said, he would." He selected a piece of land miserably poor, the last crop raised on it yielding about four bushels to the acre. The experiment was carefully made according to the terms required, and the result reported after husking in November; it was very dry when Mr Hurd, the owner, husked it, and therefore he weighed it at the time of husking, and called 70 lbs. in the ear a bushel of corn. On that reckoning, his report was as follows: "The plot without manure, which he thought would yield 15 bushels to the acre, yielded 18; the plot with manure, which should have yielded, on my calculation, says Prof. Stockbridge, 43 bushels, yielded 48. The experiment on the College farm ran over 4½ bushels; the experiment on Mr. Hurd's farm ran over just 5 bushels."

Another experiment is worth adding here: The same year Prof. S. sent to another careful, observing farmer on the Sunderland meadows, in whom he had the utmost confidence, whose soil was alluvial, and of good quality, and said to him, "I want you should grow me a crop of corn and here are the materials that I want you to put on the land, and make me 50 bushels of corn to the acre over and above what the land would naturally produce, with the proper proportion of stalks." The experiment was carefully made, on a plot that he thought would yield 30 bushels to the acre without manure. In December, the farmer reported to the Professor the results: "Plot without manure, instead of having produced 30, gave but 18 bushels, and that the plot with manure 83¾ bushels to the acre!" The Professor adds:

"I get, therefore, a great deal more corn than I ought to have had—it went up, just as the other two experiments did, above the original statement, but the plot without manure had gone down to 18 bushels. I wrote a letter to Mr. N. A. Smith, in which I said, "If I did not know you were a man of truth, I should believe you lied. It cannot be possible. There is a mistake somewhere about this. That plot could not, with that material for fifty bushels of corn, have gone up to eighty bushels, or else something ailed the crop without the manure. Did the grasshoppers eat it, or did the army-worm eat it? This experiment cannot be true." He replied: "I can't tell you anything about it, only this: I concluded not to plant the lot which I showed you, and I put my cornfield on the other side of the road, on low land; land that was rich, but I had to plant one plot without manure, and the consequence was, that the corn planted on that land originally came up yellow corn, it remained yellow corn throughout the season; did not ripen, and I got very poor, miserable stuff. It was not half cured-off when I harvested and husked it; but on the plot that had manure applied to it, the corn came up rank and strong, grew vigorously during the season, and produced the crop I have stated." Therefore, says Professor S. I was obliged to accept the result, as he had stated it, and I could not tell, without some reasoning, whether the experiment was a success or a failure. But I knew that it was one of those failures that every farmer would like to have happen on his farm; therefore I was satisfied."

A subsequent trial is reported. In the experiments given above, to make allowance for any loss or waste in the manure, more than the requisite quantity was given that was to produce 25 or 50 bushels. To be certain that his premises were correct, the Professor now gave the exact quantity of manure to make the requisite yield of corn and the stalks, which was to be 50 bushels; the result was, that the unmanured plot produced 34 bushels to the acre, whilst the plot of land with manure which it was stipulated would make 50 bushels more to the acre, made 83.28 bushels to the acre; that is, it did not come up to the statement by a little less than 3 pecks to the acre; it should have made exactly 50 bushels, and it made 49.28—that is the result of this year.

It is not necessary here to repeat the experiments with potatoes and wheat, to which we alluded in our previous numbers—they bore out the Professor's experience with corn—and we will only here add what the Professor says about the fertilizers applied:

"In practical operations on the land, for crops, one year, two years, three years, four years, consecutively, for such crops as you have used, the farmer need not use any carbon, to make carbonic acid, sugar, starch, etc. He need not use any oxyen or hydrogen, any soda, or any chlorine. He need not use any sulphuric acid; he need not use any magnesia, except, perhaps, for the tobacco crop. He need not apply anything to grow crops upon the farm, but nitrogen, potash and phosphoric acid." That is what nature seemed to say to us: "If you want to grow plants, take nitrogen, potash and phosphoric acid, on such soils, for such plants, and you can make them."

Constituents of Fertilizers.

Dr. Pendleton is the professor of agriculture at the Georgia State College of Agriculture and the Mechanic Arts, where are taught such sciences as will enable a man to make the most judicious use of all the means within his reach, so as to secure the best results from the cultivation of the soil, and where the experiments made on the experimental farm are intended to practically illustrate the principles involved in the sciences taught.

At the Spring meeting for this year of the Georgia Agricultural Society, Dr. Pendleton made a report, being the third he has presented, of experiments made on the college farm under his personal supervision. From this result it appears, as he has heretofore announced, indeed, that he is not a believer in the necessity of potash as a constituent of fertilizers, nitrogen and phosphoric acid being the principles of which the soil is first depleted by cultivation, and being all that are needed to be applied in order to make a worn soil again fertile. This view is now held by Messrs. Lawes and Gilbert as applicable to the constituents of English soils and crops.

The only question, says the Professor, that a planter need ask himself in the purchase of a fertilizer is, have I got an article containing ammonia, actual or potential, and phosphoric acid, soluble and insoluble, at the common rates these articles command in the market? Don't be so much concerned about what they cost as about their purity. If you get them pure, and apply them right and cultivate well, they will pay you the first, second and third years. Your land does not want salt, nor lime, nor plaster, nor potash, to make cotton. There are a plenty of all these elements contained in them to make your cotton fibre for a thousand years and more. These salts act to some extent as fertilizers, but not as food. Under certain circumstances they help to prepare food for the plants. Lime will eliminate ammonia in the soil to a small extent. Plaster will fix it, and salt and potash will help to dissolve insoluble phosphates to a limited extent; but a man must know when and where to apply them in order to make them pay. But in the application of phosphoric acid and nitrogen, you can make no mistake, except in applying what you bought for them, which proves to be something else.

If these experiments are true, and the inductions from them have not been perverted, (and we know they have not,) the planters of Georgia can double the productive capacity of their lands without any increase of labor. These red old hills and white plains can be brought up to the production of the rich lands of the West, so that they may successfully compete with them; cotton can be produced at a much lower rate per pound, and much more labor appropriated to other crops. Thus, if a man cultivates his land without fertilizers and makes 438 pounds per acre, and his neighbor cultivates similar land, and applies the nitrogen and phosphoric acid as per my first table, and it costs the first man 12 cents per pound to make his cotton the first year, it will cost the man who applies the fertilizer only 7 cents 3 mills to make his cotton, allowing that the extra seed is worth to him the cost of the extra picking and ginning. This would be the result the first year; the second year is still more favorable; and the two years together the progressive farmer makes his cotton at 5 cents 8 mills per pound, while it would cost the *old fogy* 12 cents per pound.

These estimates are based upon the lowest results of eleven experiments, all of which teach the same truth in reference to cotton production.

The time has come when ignorance must yield to science in the cultivation of the soil, and when the *ignoramus* can not compete with the agriculturist. Intellect and science must prevail in this most intricate of all the occupations, and knowledge, more than ever, will be power as well as money too, in the cultivation of the soil.

An Economic Mode of Rendering Phosphoric Acid Soluble and Suited to Ready Assimilation by Plants.

At the meeting of the Georgia Agricultural Society in February, Prof. H. C. White read an address, from which we extract the following very important and interesting portion:

"In the report which I had the honor to make, one year ago, at the meeting of this convention

at Columbus, attention was called to the results of very interesting experiments that had recently been conducted in Germany and elsewhere abroad, upon the effect produced upon finely ground phosphatic material by composting it with stable manure and other decomposing organic matters, and permitting the compost to remain unused for a considerable length of time. These experiments seemed to indicate that the fermentative action of the decomposing matter employed produced such a change—either physical or chemical—in the phosphatic material, that from its original condition of insolubility, either in pure or "soil" water, it passed, in considerable portion, to a condition soluble, at least, in the latter.

Since it is universally conceded that phosphoric acid, (and the same is true of all plant food,) in order to be readily and immediately assimilable to plants, must be in a form soluble either in pure water, or in the solvent naturally present in the soil—the "soil water," as it is termed—it is evident that every process that looks to the economic production of this form of phosphoric acid from the *insoluble* form furnished in immense quantities (as "bone phosphate," "rock phosphate," etc.,) by commerce, is invested with an interest of the utmost importance to the agricultural community. Purely chemical means (treatment of the insoluble phosphate with sulphuric acid) have heretofore been exclusively employed to furnish phosphoric acid in a soluble form, and these are of so costly a character that soluble phosphoric acid has always been one of the most expensive (if not *the* most expensive, considering the large quantities used,) of the articles employed by the farmer for artificial fertilization. For example, insoluble phosphoric acid, in fine condition, may now be bought for 4½ cents per pound; whereas, the chemical treatment necessary to render it soluble, increases its value to 15½ cents, the price asked per pound for soluble phosphoric acid.

In my report of that year, it was stated that experiments would be instituted to test the value, in this respect, of the composting process under such conditions as were especially and easily applicable in our own State. This statement was reiterated in the last Annual Report of the State College of Agriculture and Mechanic Arts, foreshadowing the work marked out for this laboratory during the ensuing year.

There was procured from Charleston, South Carolina, a quantity of phosphatic material, the original source of which was the beds of rock phosphate found in South Carolina, and which had undergone no artificial treatment, except drying, perhaps, and mechanical grinding by machinery. The material had been ground very fine—was in an extremely minute state of subdivision. The degree of comminution was greater than that ordinarily found in "fine-ground phosphate," as this material was obtained from the *dust* that flies from the rollers at the works in grinding. Its physical condition was, therefore, almost that of impalpable powder.

This material was found to contain, in all, 27.654 per cent. of phosphoric acid, a small portion of which (no doubt by reason of its extremely minute state) was soluble in "soil water," or the solvent that was employed in the laboratory to represent it.

On the 20th of June, 1874, a compost heap of small dimensions was made by mixing together carefully and intimately this phosphate, common garden earth and cotton seed, in the proportions given below. Portions of the earth, cotton seed, and freshly-made compost were reserved for examination. The compost heap was at intervals moistened until four gallons of water had been used in this purpose.

The proportions of the compost heap were:—

Fine phosphate	34 pounds.
Garden earth	40½ pounds.
Cotton seed	31½ pounds.

The fine phosphate, as above described, contained as follows:

Phosphoric acid, soluble, in "soil water,"	3.256 per cent.
Insoluble phosphoric acid	24.398 per cent.
Total	27.654

The earth contained—

Phosphoric acid (all insoluble)	0.012

The cotton seed were of an ordinary character, that had been on hand for about a year, and were consequently not *green*. They contained—

Phosphoric acid (all soluble)	1.573 per cent.

The freshly made compost contained—

Phosphoric acid, soluble, in "soil water,"	1.231 per cent.
Insoluble phosphoric acid	9.373 per cent.
	10 604

After standing eight months, about the 20th of February, 1875, the compost heap was taken down, thoroughly mixed, and samples taken from it for examination. It was now found to contain as follows:*

Phosphoric acid, *soluble, in pure water*	0.309 per cent.
Phosphoric acid, soluble, in "soil water,"	3.940 per cent.
Insoluble phosphoric acid	6.300 per cent.
	10.549

By comparing the freshly made compost with the compost after standing eight months, it will be observed that, whereas the first contains but 1.231 per cent. phosphoric acid, soluble, in soil water, the latter contains 4 249 per cent. soluble, in pure and soil water. *About one-third of the phosphoric acid that was "insoluble" in the former, has become soluble in the latter.*

It would therefore appear, so far as general conclusions can be drawn from the results of one thorough and carefully conducted experiment, that the effect of composting finely ground, "insoluble" phosphatic material with cotton seed and earth, is to render the first named substance, to a considerable extent, "soluble." There takes place within the compost heap an action which, so far as its effects are concerned, is similar to the artificial chemical treatment of insoluble phosphate with sulphuric acid.

Theory and experiment alike seem to suggest that the two necessary elements in the profitable practice of this process for obtaining phosphoric acid in proper form for plant assimilation, are: first—the utmost mechanical fineness of subdivision of the phosphatic material employed; and, second—that the compost be allowed to stand for a considerable period of time before using. So far as the first point is concerned, there is no doubt that means could be readily devised by

*All the results given above are calculated to the same condition of moisture, viz: 7.431 per cent., that of the freshly made compost. The solvent employed to represent "soil water" was a strong solution of "ammonium citrate."

which extremely finely ground phosphate could be furnished at a small cost.

The second point only involves a question of interest upon the invested capital permitted to lie idle in the compost heap.

That the investment would be a good one, may perhaps be illustrated by estimating the increased value shown in the results given above upon another basis—that of a money consideration.

Such a compost as that put up in the laboratory would have involved an actual outlay of $8.50 per ton.

The estimated commercial value of the compost (using the prices of last year) would have been, on the 20th of June, 1874, $12.25 per ton. The estimated commercial value of the compost (using the same prices) on the 20th of February, 1875, would have been $17.94—an increase in value of $5.69, a profit on the original investment of 46.4 per cent. in eight months.

This would certainly appear to settle the question of time.

In my report last year I suggested and requested that some members of this society, or others of our intelligent farmers, would try this process on a large, practical scale, to determine, from actual experiment in the field, if the great value of the process indicated in the laboratory, be confirmed by practical testing in the soil. I beg to repeat that suggestion, and request at this time, with the expression of an earnest hope that much will be developed by such experiments of great value to scientific agriculture.

The Pea as a Renovator of the Soil.

We have for some time past intended again to urge the value of the pea as probably the cheapest and most ready means of restoring fertility to the soil of any application that could be availed of—and now is the time for the presentation of the subject to the attention of our readers. Fortunately just as we had prepared the facts for a paper upon the subject for our June issue, our venerable and old time friend, Mr. Gilmer, of Virginia, who never loses sight of an opportunity to do good, and especially to remember his old favorite, the *American Farmer*, has had placed in our hands a letter upon this subject, which speaks for itself. In our volume of '74, also, his experience was given upon the same subject, to which we refer our readers who have that volume at hand. We tender our thanks to Mr. Dandridge, for his prompt compliance with the request of Mr. Gilmer, in forwarding the letter so as to be in time for our June No., as the time could not be *redeemed* which called for its publication at the present time:

UNIVERSITY OF VA., May 13, 1875.

WM. G. DANDRIDGE, ESQ., *Richmond, Va.*

Dear Sir—Your favor of the 8th, asking my opinion as to the best time for sowing peas for a fallow, and whether it would do harm to turn stock on before turning the peas under, was received on my return home from a trip which was rather too much for one of my feeble old age, and I assure you I am now far from being able to do the subject, you or myself justice,—being very feeble and confined to the house. To get the greatest amount of profit from a pea fallow, I should first thoroughly prepare the land; then, from the 1st to the 10th of June, I would sow one and a half bushel of peas, a bushel of plaster, two bushels of oyster-shell lime and one or two bushels of salt to the acre, and thoroughly cover all at the same time under one operation, for use while green; and for seed I drill my peas every Saturday in May, which are well worked, and being earlier I gather most of my seed. Were you to sow your peas in May the summer weeds would most likely choke or crowd out the peas to an unpaying fallow crop. The pea should be turned under before frost, or it will not pay, and I think I have some times erred in turning my peas too deep—get them in so as not to interfere with the drill or harrow. I prefer running a heavy roller after ploughing to compress them, as also the soil. I think after you find you have secured enough seed, it pays well to turn on stock; their droppings and trampling will pay for any loss or damage to the fallow—if it does not, the great improvement to the stock certainly will. I think it best to sow or plant a lot for seed, and not get any from them in the green, but when ripe enough mow them off with a mowing blade by hand, and when wilted haul up and put away, so as not to get hot; frail them out in winter,—the ripe come out easily, the green remain in the pod and vines, making the best food for sheep I have ever had.—If properly done, the pea fallow is as certain a paying operation as any we can do; poorly and badly done, it is like all other things half done, and not worth doing at all.

In 1869 I made ten bushels of wheat for one seeded on my pea fallow, and eight bushels for one on the buckwheat fallow, and three for one on Mr. B. C. Flanagan's wheat manures made in my own county. The year was a dry one;—all thoroughly prepared and seeded in time. Had I never bought a pound of any of the manures, but have laid out one-half the amount in peas, buckwheat, clover and the grasses, plaster, lime and salt, and the other half in sheep and fruit trees and milch cows, and in fixing up my wife with her fowls of every kind, pig-pens, bee-houses, out-houses and every convenience for her department, and we each had hoisted our flags for a fair race, and kept it up till now, how beautifully great and grand would now be our condition. To the bitter errors and indiscretions of the past we must submit as best we can.

How long will our people continue these follies? Please fairly test side by side the pea and your bought manure and a lot of buckwheat, as you do the pea. If the season is moist the buckwheat will beat the peas, and both will beat a large majority of the bought manures. Don't let the man you buy of know it is for a test with those cheap green and home-made manures; if he should know, somehow or other it would be better than any ever made before. A bushel of buckwheat is sufficient for an acre, and cheaper than the peas, and the peas far cheaper and pays in crops and improvement of land better than any of the bought manure I have ever gotten.

My dear sir, you will see by the trembling hand that writes this, my very feeble condition, and I fear you will hardly make it out, and then be poorly paid for its reading; yet it is the best I could do in my present condition. I have received several letters from friends, making the same inquiries, and one from our old friend Mr. Sam'l Sands, of the *American Farmer*, Baltimore. May I ask the great favor of you, after reading this,—if you can read it—to send it to Mr. Sands, who can give it to his readers, or cast it away, as he may deem best for those for whom he has been so long, so successfully laboring.

With best wishes for your highest success, yours, most truly, GEO. C. GILMER.

In my opinion, there is no lot of anything will pay better than two lots near the house,—one of peas, the other of buckwheat,—for hogs or pigs. Lots kept for this purpose pay well. G. C. G.

[We recently had occasion in another connection, to draw attention to this subject, in which we remarked, that it was now many years since we most earnestly called the attention of our agricultural friends to the value of the pea as a fertilizer for the soil, and gave the results of the trials of it by one of our most enlightened citizens, who was as much devoted to his farm and its improvement as he was to his prosperous business in the city, and who was probably the first farmer here who had then tried the virtues of the pea. From that time to this we have repeatedly called attention to the same subject, and yet how few, comparatively speaking, of our farmers have availed of the results of our friend's experiments of that day.

The gentleman alluded to was John Q. Hewlett, Esq., whose farm was on the Frederick turnpike, about four miles from this city, who at the time alluded to was probably the only farmer in Maryland who had been in the habit of making the cultivation of the pea, as a fertilizer, a part of his rotation. He sowed usually two bushels of peas per acre, on the previous year's corn field, about the 10th May, and plowed the vines down about the 15th August, sowing his wheat upon the pea fallow. Upon this pea fallow in September, (he preferred sowing his wheat early to avoid the fly,) he sowed his seed, and usually obtained from 25 to 35 bushels to the acre, the latter quantity the oftenest.

The great advantage of the pea over clover for the purpose of turning under, is the great saving of time; buckwheat will answer the same purpose, but not so readily or certainly on some soils, and the nitrogen from the peas is considerably greater than can be obtained from the buckwheat.

Under the system of raising clover for the purpose indicated, two years almost is necessarily consumed before the latter can be made available to the fullest extent, for in its use the roots of the plants contain as much fertilizing value as the leaves and stalks of the plant; but with the pea the benefits can be reaped in the course of a few months, as shown above. And the nitrogen, the most costly fertilizing ingredient for most of the standard crops of the Middle States, as well as some of the South, is found fully equal in amount, we believe, to that of clover.

There is no doubt that the field or cow pea is one of the most desirable for fertilizing purposes. They can be sown broadcast as soon as the wheat is cut, and in six weeks there will be a good heavy crop to turn under. It has frequently been noticed that where peas have been threshed in the field and the haulms have been allowed to rot, they make the land very rich.

Manures—Natural and Commercial.

At the May meeting of the Maryland State Society, Mr. Sands made the following remarks:

Mr. Sands said that whilst the farm-yard manure could not be dispensed with, it was most materially assisted in its operations upon the crops to which it was applied by the addition of other means of fertilization to its bulk, or in connection with its use—the condition of the manure, too, was an important consideration. Some of the barn-yard manure was deprived of the necessary ingredients of fertilization by being exposed to the washings of the rains, its richest parts being carried off and lost to the owner. He said that it had been proved beyond doubt, by careful experiments of the best practical farmers, that where manure in the barn-yard was carefully preserved from those washings and put into heaps with plaster sprinkled over it occasionally, and covered with shedding, the result had been found to exceed in the products to which it had been applied, double the value to that which had been managed in the slovenly way which is so generally adopted by our farmers.

These propositions were enlarged upon by the speaker. He reminded the farmers present of the fact, that although the straw and fodder and husks from the grain crops were returned to the land in the shape of manure, which had been passed through the stomachs of the stock on the farm, or trodden under feet by them, yet there were essential elements of almost every crop that are removed from the premises of the landholder which must be replaced, otherwise a deterioration of the soil would inevitably be the result in course of time. When we sell off our wheat and rye, our oats and corn, our milk and hay, although we may return all the offal of the cereals again to the land, that will not supply the loss occasioned by the removal of the grain. The stalks and leaves, &c., may be furnished in the succeeding crop to secure an abundant return of the same material, but these will

not supply the waste to the soil by the abstraction of the grain therefrom. What little of the oats and corn and hay that may be fed on the farm, will in some degree return the means of recuperation, but the limited amount in this respect is evident to every one familiar with the subject. What then is to be done in the premises, is the great question which is now agitating the minds of the farmer, to supply this want. The aid of science has been brought to bear upon the question, by men of research and practical experience, who have made great progress in the attainment of the object within the last few years. Some short time since, the discovery of the value of Peruvian guano was supposed to have solved the intricate question, but after a while it was found that, valuable as it undoubtedly was for the resuscitation of our worn-out lands, its effects were but temporary, and the ceasing to supply the soil with organic manures, such as that derived from the stables and the compost heap, in connection with which the guano could operate, the constituents still in the soil were soon exhausted, and it was evident there was something more still necessary other than the ammonia of the guano to supply the necessities of the farmer. Phosphoric acid in the form of bone dust was about the same time introduced to aid in the work of renovation, but for a long time but few could be induced to test its virtues; and whilst English agents were in our midst gathering from our old fields the bones which were bleaching thereon, our own farmers not appearing to know or care as to what was going on elsewhere, were witnesses to the daily abstraction, right under their eyes, of the most important means of replenishing their lands. Had they read the papers of the day devoted to their business, they would have learned that their brethren across the water were sending to every quarter of the globe, gathering up the bones of animals, and that even the great battle-field of Warterloo, where so many of their kith and kin had been slaughtered, had been ransacked for the bones of their heroes, from which to make bread and meat for their posterity. Mr. Sands showed that *now* true science and practical experiments had demonstrated that the great secret of nature was about being fully developed, and that it was determined almost to a mathematical certainty the exact amount of the ingredients necessary to make a crop within the limits of nature; in verification of which he referred to the experiments and researches of Professor Stockbridge, of the Mass. Agricultural College; M. Ville, of France, and others, which have been published in the agricultural reports of the day.

It was admitted that if all the products of the field,—grain, hay, straw and so forth,—were used on the farm, then there would not be the same necessity for furnishing the phosphates and nitrogen and other constituents of plants which are usually shipped off for the markets of the world. A properly proportioned mixture with the barn-yard manure of phosphates and ammonia, in the shape of bone dust, mineral phosphates or superphosphates, will be found the *ne plus ultra* of the farmer, the proportions of which can be best determined by the nature of the plant to which it is applied. Some crops, such as tobacco and potatoes, requiring potash, are largely increased by the addition of ashes, whilst all applications of plaster will be found of great value, especially when mixed with manures or fertilizers containing ammonia, to preserve them from the loss of that ingredient in their composition, and more especially is its value found to be extremely profitable when applied to clover and plants of that class (leguminosæ.)

In connection with these remarks, the speaker alluded to the practice of some farmers or planters who applied to their crops commercial fertilizers and expected to realize, from the solubility of the same, the full benefit of the expenditure; this is upon the same principle which was formerly in vogue with respect to the application of guano. It did pay well at first,—not only the cost, but also a good profit, but it left the land in a depleted state, and such, probably, is the calculation of those who expect to get the full returns for their money expended with a profit, calculating to use other fields of their large estates for subsequent cropping. One of these planters, in his maxims for raising cotton, says that "cotton plants commence when small to take on and mature bolls and continue *until they exhaust the soluble matter or reach the full capacity of the land.* Two stalks will do that much sooner than one and will so avoid the late drought, caterpillar, etc. Cotton will grow after cotton a number of years in succession, with *plenty of manure.*" But the end will eventually come.

Facts Worthy of the most Profound Consideration.

In a series of papers to the Nashville, (Tenn.) *Union*, of which he is the agricultural editor, Dr. *D. Lee*, whose connection with the agricultural *press* has been almost equal in length of time to that of the senior of the *American Farmer*, gives some strong arguments why the farmers of the South should adopt the utilitarian doctrines of their brethren of the North. Although born in, and for many years of his earlier life he was devoted to the science and practice of Agriculture at, the North, for the last quarter of a century he has resided at the South engaged in the same work of enlightening the agricultural public with the results of his observation and experience, and has thus been doing much good to the country. In the *Rural* (S. C.) *Carolinian* for May, the Dr. in an essay on his favorite topic, makes the following concluding remarks, which fully coincide with what we have so often and urgently presented as the convictions of our mind, that instead of *going West*, as the philosopher Greely recommended so persistently to the surplus population of the East and North, the advantages in the Southern States are far superior for the class for whom his advice was particularly intended.

And here we would incidentally allude to the fact, that the signs of prosperity, material and

social, at the South, are decidedly evident of late; not only is the prospect fair for excellent crops of their great staples, so far as can be judged by present appearances, but the earnest efforts of their most devoted men who are laboring for the advancement of their permanent interests, have induced a more diversified system of farming, by which they are now more likely than at almost any former period, to produce their own bread and meat, their milk, butter and hay, and all the other comforts of life, in the enjoyment of which they can alone feel themselves independent. The social and political condition of the country, both North and South, is also becoming more in accordance with what should be the result at the expiration of ten years from the closing of the civil war—this has been brought about very largely by the interchange of visits of leading men of both sections to those States where the most bitter enmity was supposed to exist against each other, only to find that a very great misapprehension had gotten possession of the public mind upon the subject. If the PRESS would only use its powerful office in the same direction, as it should do, and urge upon the people both North and South to strive for the things that make for peace, we vouch for it, that before the end of the great Centennial Exhibition shall have closed its mission, almost the last vestige of that enmity which has been for so many years rampant throughout the land will have disappeared, we hope forever.

But to Dr. Lee's experience. He says:

"Science told me, thirty years ago, that *an acre of South Carolina sunshine, solar heat and rainfall, will produce twice as much cow feed in twelve consecutive months, for making either butter or cheese, as can be grown in the same time on the dairy farm in New York, on which I was reared.* Large dealers in butter, who make it a study, say that the crop of 1874 was not less than one billion five hundred millions pounds in the United States, and if three pounds of good butter fetch a dollar, then this agricultural staple was worth to the country five hundred millions dollars.

"In the neighborhood where the writer practiced medicine fifty years ago, the milk of two thousand five hundred cows is made into butter and cheese in one factory. Should the time ever come when the landholders of the planting States think seriously of butter-making to supply in part the growing markets of the world, let me say to them that in a million pounds of pure butter there is not an ounce of assimilated nitrogen, phosphates or potash exported in the staple sent abroad. Bermuda and blue grass pastures will grow from one decade to another for centuries, as well in the damp atmosphere, so favorable to sea island cotton, as in England. No where on this planet can air and water be transformed into grass, and grass into wool, cheaper than in South Carolina. It has been well said that "history is philosophy teaching by example." Listen to the words of truthful history. The same farmers of Erie County, N. Y., who asked the undersigned to represent them in the Legislature, wanted a County Savings Bank. A charter for such an institution was granted in 1844, called the "Erie County Savings Bank." The official report of the same made on the first day of the present year shows the large sum of $8,397,827 on deposit. The Buffalo Savings Bank, in the same city and county, returns $5,637,936, and the Western Savings Bank (Buffalo) $1,455,359. The total sum deposited in banks of this class in the State was $246,678,164 on the first of January, 1875. No reader should be offended if I remark that the producing classes in the South ought to learn more of the great art of *keeping property* as well as of the arts of skilful production. There is no more limit to the wealth which good tillage and husbandry may call into existence than there is to the atoms which exist in the atmosphere, in the ocean, and in the solid earth; but it requires study and science to change a pound of air into a pound of wheat, corn, cotton, meat, or wool, to the best advantage."

Tobacco Culture.

From a prize essay, by J. J. Pursley, of Missouri, we make the following extract. It is stated that the correctness of the processes described have been tested by many experienced growers. In our volume of the *American Farmer* for 1874, we gave a series of papers from the pen of Mr. White, on the cultivation of the weed in the Connecticut Valley, and in the January No. of this year, a very able article from Major Ragland, of Virginia. Although the particular modes adapted in either may not be suitable for other kinds of tobacco raised elsewhere, there are some general principles in each that may be found useful to our readers. From the numerous inquiries upon the subject of this crop of late, we believe that an unusual degree of attention is being paid to its cultivation this season. We will give the remainder of the essay, on harvesting and curing, in our next.

Soil and Planting.—Tobacco can be raised on most qualities of soil, but the best is new first year's land; white oak, hickory, hazel, or paw-paw land is preferable. After plowing, the ground should be harrowed thoroughly, making it as mellow as possible. Checker it off with a shovel plow so as to form the hills about three feet apart; make up small, flat, mellow hills. This should be done by the time the plants are large enough to transplant. Transplanting is usually done with a peg, sharp at one end, making a hole sufficiently large to admit the plant; press the earth closely around the plant in the same manner that cabbage is transplanted.

We generally commence setting our tobacco about the first of June and continue till the 25th; if set out after this it is not apt to get ripe before frost.

Culture.—As soon as the tobacco is set out there is a great destroyer lays hold of the plant, often cutting the stem off, and thereby ruining it. It is a species of black ground-worm, usually known as the cut-worm. These must be looked after every morning, for they do their mischief in the night, consequently their sign is easier detected in the morning, and they have not entered deep into the ground. When the plant makes a start to grow, it soon gets out of the reach of the cut-worm; then all the vacant hills should be replanted.

As soon as the weeds and grass start to grow, the hills should be scraped down with a hoe, not disturbing the roots of the plant. By the time the grass makes its appearance the second time, the tobacco is large enough to admit the plow. A narrow shovel plow does the neatest work; run three furrows to the row, not close enough to fracture the tobacco, then work it over thoroughly with the hoe, putting a small mellow hill to each plant.

Worms.—By this time you will observe the work of the green tobacco-worms—they must be looked after at least once a week. There are two different species of this worm—the red-horned and the blue-horned, each equally destructive. One of these worms will soon destroy a plant. When it has finished its work, it enters the ground to come up next spring in the form of a fly. This fly lays her eggs on the tobacco, which hatch out young worms. The egg is hardly as large as a mustard seed, and of a yellowish color. Many of these flies may be caught about Jamestown weeds and destroyed. They may be seen of evenings sucking the Jamestown blooms. Keep all destroying insects off of the tobacco while it stands in the field. The bud-worm was very destructive in the years 1860-'2; it works in the bud of the plant, making great havoc with the young leaves.

When the tobacco is about a foot and a-half high, it should get its last plowing and hoeing, and should have a large flat hill put around it.

Priming and Topping.—When the buds that contain the blooms make their appearance, it should be primed and topped. Priming is done by pulling off the bottom leaves so that those remaining will not reach the ground; then pluck out the buds, leaving twelve or fourteen leaves on a stalk.

We generally go over the field three or four times, topping and priming. First, topping that which is large enough and letting the smaller remain till the next week, and so on till it is time that all should be topped to escape the frost. We generally finish topping by the 20th of August.

If the transplanting is finished by the 25th of June, which it should be, the tobacco will be amply large enough to top by the 20th of August, which will give it time to ripen by the 20th of September.

Some seasons, tobacco may be planted later, but it is unsafe in this locality, for the frost may come and lay waste a summer's labor.

Seed Plants.—The earliest plants should be left for seed; do not top them, but trim the leaves off at the top to about ten to a plant.

Four flourishing plants will yield one-half pint of good seed. The bud worm should be kept from the plants, as they will enter the pods and eat the seed. I have caught as many as twenty bud-worms on one neglected seed plant.

Suckering.—After the tobacco has been topped about a week, there will be little sprouts or suckers put forth on the stalk at the butt of every leaf. If they are neglected they will grow up and go to seed, and take all the nourishment from the stalk, giving the plant a haggard appearance, and literally ruining the tobacco. These suckers must be strictly attended to; they should be pulled off as soon as they have grown long enough to be conveniently taken hold of by the fingers.

There are generally three sets of suckers,—sometimes four. After one set is pulled off, in a week or so there will be another put forth in the same place, and so on until the tobacco is ripe.

The better the worms and suckers are kept off, the better the tobacco will be.

PLASTER FOR TOBACCO.—A Henderson county (Ky.) farmer finds plaster the best and most economical fertilizer for tobacco. After securing a stand, he put about a dessert-spoonful on the bud of each plant. Immediately after the first shower it assumed a rich growing color, which it held till maturity, notwithstanding a prolonged drought ensued. Before topping, however, he had as much more applied to each plant,—in all about one hundred pounds per acre. The land upon which this experiment was made was high, and exhausted years ago. The crop made was medium in size, and uniformly of excellent quality.

Salt for Cotton.

The Hon. W. B. Seabrook, of Edisto Island, says that for two or three years in succession he tried the experiment with salt as a manure for cotton. The salt he made use of was the common or rock salt, well pounded up, and the land upon which it was applied was of a light, sandy nature. He applied it to a row 105 feet long, in quantities of a pint to a quart to the row. The result was as follows: The row manured, with one pint of salt produced excellent cotton, which, from its germination to its maturity, had a healthy and vigorous appearance. The cotton bore well, had no rust, and the staple was strong; but wherever a larger amount than one pint was applied, the plant grew luxuriantly at first, but before maturity it became dry and seemed gradually to die away with thirst. Mr. Seabrook thinks it is best to apply salt mixed with compost or stable manure. This agrees with the practice of Count Chaptal and others; for indeed, salt, like all other stimulating manures, must have something to act upon.

In addition to the information afforded by the statement of Mr. Seabrook, several gentlemen on Edisto Island have made similar experiments, with the same success. None of them applied salt in its unmixed state, but mixed it with compost or other manures. As to its effects all seem to agree that it acts beneficially upon plants; and more so upon the cotton plant than any other plant. They all think it tends to prevent rust in cotton.

If these statements are correct, does it not behoove our planters to give salt a trial? At the

rate Mr. Seabrook applied it, one and a half bushels would be sufficient for one acre of land.

The well-known fertilizer, "Dickson's Compound," is composed of the following ingredients, viz: 200 pounds of Peruvian guano, 100 pounds of dissolved bones, 50 pounds of land plaster and 50 pounds of *salt*. Mr. Dickson contends that the salt has a very beneficial effect and tends to prevent rust. He uses about one bushel to the acre. Let our planters consider this matter well, and we have no doubt if it is used in a compost of cotton seed, stable manure and land plaster, at the above rate, it will have a good effect. We hope some of our planters will try the experiment, especially on land where the cotton is liable to rust.—*Farmers'* (*Miss*) *Vindicator.*

How Upland Rice is Cultivated.

That excellent paper, the *Mobile Register*, the agricultural department of which is so ably conducted by Professor J. Parish Stelle, describes the method of cultivating upland rice as practiced on the pine lands of the Gulf Coast, as follows:

The soil to be well pulverized with plow and harrow first, then laid off in rows eighteen inches apart, with wooden teeth prepared for the purpose. If on cow-pen or previously fertilized soil, the seed is dropped in the drill at the rate of from one peck to a half bushel per acre, and covered lightly with harrow, brush or roller. If a fertilizer is required, it is well to sprinkle lightly in the drill, say of cotton seed meal (which is the commercial fertilizer mostly used here) 200 pounds to an acre. The planting should be done last of February or in March, as a frost after it is up does not injure it much, and by planting early matures before the heat of the summer affects it. As soon as it is up so as to follow the rows easily, run a small bull-tongue as close to it as possible. Give it another sprinkle of seed meal on each side, 200 pounds more per acre, then cut with a narrow hoe, leaving two or three healthy blades or stocks from three to five inches, for, like oats and wheat, it stools out, sending up 20 or 30 stocks from one grain.

After thinning, work the middles with a light cultivator or harrow, leaving the surface as level as possible. Do not at any time throw a furrow to the rice, but cultivate shallow as long as the grass continues to show. Twice is usually sufficient, for if the crop is planted close enough, it will soon shade the ground and keep down the grass or weeds. Select new land, or that upon which there is no crab grass, and it requires no more labor than corn. The cutting, threshing, &c, same as oats or wheat. The yield here is from 30 to 80 bushels an acre, and straw is about as good as hay for feed. We get our rough rice dressed or polished in New Orleans, the mills charging one cent per pound as prepared for market. Some dress in hand mortars fresh as they use it, which is done quite rapidly, and thought to be better when cooked.

A measured bushel of upland, or bull rice, as it is named here, from size of grain and rank growth, will give about twenty-two pounds when dressed.

Correspondence.

Our French Letter.

To the Editors of the American Farmer:

Oxen in France.

Draught oxen commence to be scarce in France, at least those of a suitable character, owing to the great extension of beet culture. The oxen ordinarily offered for sale are more appropriate for the slaughter-house than for harness. It is from the department of the Loire-Inferieure that the best breed of draught oxen arrive, as they are trained to work, accustomed to fatigue, have their hoofs hardened, do not "perspire in their fat," escape pulmonic diseases, and rarely founder. An ox for labor is sold at the same price as one for the butcher, and farmers complain of being compelled to purchase useless tallow. Henceforth the government regional agricultural shows will offer every encouragement for increasing the supply of draught oxen. The various Winter stock shows have proved so many successes in the provinces, and demonstrate the rapid strides France is making in the production of meat, for which there is ever an active demand. France imports every year cattle, for consumption, to the value of seventy-seven millions of francs. It is also a noteworthy fact, that a great amelioration is taking place in the breeding of stock, as specially suited to each particular region. I have noticed, at Rouen for example, a singular and not unpleasing custom, that of promenading the prize stock, with their colored ribbons and medals, through the chief streets of the city. M. Andre, of Fleurs, draws attention to a rare case of fecundity: a cow, four years old, had two calves, both excellent; at five years, abortion; at six, three calves, all hearty, and now the animal has, at seven years, given three calves again, and the whole lot is very vigorous.

Schools for Dairy-Maids.

The success which has attended the foundation of "Dairy Schools" in Denmark will lead to the adoption of a similar experiment in Normandy and Britany, where the daughters of farmers will not only be instructed in all that refers to the science and practice of the dairy, but also in household management, the kitchen garden, the poultry yard, and bee-keeping. Connected with this institution will also be organized, arrangements for the instruction of dairy-maids proper, and to whom diplomas will be given, after eighteen months residence in the establishment.

Barn-yard and Commercial Manures.

There is a reaction, in the sense of extreme caution, setting in on the subject of commercial manures. Farmers are commencing to return to reliance on farm-yard manure, and to regard all other fertilizing agents as merely its complements. The belief that chemical agents alone, or specially prepared artificial manures, are adequate to sustain not only the natural richness but the physical characteristics of the soil, is daily losing ground. France, Saxony and the colony of Reunion at least, can justify this waning confidence. Now, before the arrival of guano, a farmer could purchase for francs 40 per acre all the industrial manures he required; to-day there are advanced

agriculturists who regard an expenditure of francs 200 to 300 in the same end, quite as a matter of course. Sulphate of ammonia, which formerly was 300 francs per ton, has risen exactly to double that price. In the French colony of Reunion the soil has been ruined almost by the abuse of guano, as the land no longer produces the yield of sugar canes as formerly; the plants are sickly, owing to incomplete nourishment. The sugar cane requires a manure rich in phosphate of lime and potash; a little nitrogen is good, but much injurious; now guano afforded too much nitrogen and no potash, so that after forcing the soil to yield enormous returns, the canes subsequently began to dwindle, the store of elements in the soil had been exhausted, and with insufficient nutrition arrived a languid vegetation and attacks from insects. The base of all successful farming should repose on farm-yard manure; chemical fertilizers ought to be ranked only as aids. Nitrate of soda is another case in point; where its employment has been abused, in the sense of being chiefly relied upon, the soil has exhibited marks of exhaustion, losing its cohesiveness, and undergoes a kind of calcination, at the expense of its humus. M. Cabieu urges farmers not to neglect the jelly fish, to be found stranded on some sea-shores in vast quantities, as a source of manure; it is exceedingly rich in phosphate of lime, and mixed with night soil or urine, is richer in soluble elements than Peruvian guano.

Improving the breed of Horses.

A writer has observed, "by tilling fields a nation is fed; by breeding horses, it is defended." The Hippic society of France, founded in 1866, is certainly occupied in a patriotic work. At first, its shows were confined to Paris, but since last year, branch exhibitions have been inaugurated in the chief horse-breeding regions of France. The object of the society, like the government studs, is to produce horses adapted to each peculiar region of the country, and combining qualities alike serviceable for general work as well as for war. Three classes of stallions are accepted,—pure English, pure Arab or Anglo-Arab. It has been found, that with horses, as with other farm stock, much depends on the soil and climate. In Normandy, with its rich pasture lands, its calcareous-clayey soil, the pure English blood only succeeds; in the south of France, the Arab or the Anglo-Arab is best suitable, while in the centre of the country and part of Britany, the Norfolk horse succeeds best. The pasture lands of Normandy impart to the animal's blood and bone the requisite rich supply of mineral substances. It is a curious fact, that following the geological structure of the country, the largest and most vigorous horses are to be found where the soil is calcareous. In Normandy the horses are of this type, while in the neighboring region of Britany, where the soil is of granitic origin, the horses are small, but not less remarkable, improve in size as the coast is approached and the lands enriched by the calcareous manures which the sea contributes. The horse show now being held in Paris includes 415 animals; in point of numbers, this total is less by some 26, than as compared with last year; with regard to quality, the exhibitions are about the same. Normandy contributes 262 horses, the West 79, the South 18, &c. Upon 39 exhibitors, 15 are professional breeders and 15 dealers; the increase among the latter is not to be despised, as encouraging purchasers of native breeds. At best, horse breeding in France is only a secondary object with farmers or perhaps graziers, yet the demand for French horses is great; 23,720 were exported in 1874, against 13,440 imported. Even Germany, that has suddenly prohibited the exportation of horses, bought during 1874 in France, 4,770 horses, while France bought in return but 3,323. The French government accords bounties of francs 500 to the rearers of the best mares, but which apparently has had the effect of only ensuring a speedier sale of the animals to foreigners. In order to keep these mares in the country, the bounty will henceforth be converted into annual pensions, to be forfeited in the event of the animals being sold.

Preserving Green Fodder.

The question of preserved green fodder, in air-tight trenches, continues to excite much interest, especially after the short supply of forage plants during the last season, and our exceptionally prolonged winter. It is almost unanimously conceded, that the best plant for preserving is maize; there is a difference of opinion as to whether it should be chopped before being piled in the trenches. Some say if it be sown, not broadcast but in close lines, the cutting may be dispensed with. It is furthermore decided that cattle thrive best on this preserved diet when supplied with a ration of hay. Asphaltum is to be tried as a coating for the brick work of the trenches; it ought to be excellent, as it was a favorite material with the ancients in the construction of their grain depots, and where humidity was to be guarded against. Another phase of this fermented-food question, is that practiced some fifty years ago by M. Andre, a Bohemian agriculturist, and consisting of a mixture of husks, colza pods, chopped hay, straw, &c., with green leaves or cut roots, wetting the mass, and allowing it to ferment in vats, or mason-work troughs, for forty-eight or ninety-six hours, according to the temperature of the out-office and the substances operated upon. This slow cooking without fire is not only economical, but the product is relished by the animals, and in addition increases the yield of milk, and hastens the fattening of stock. M. Petermann, of Belgium, draws attention to the fact of his having discovered in the "wash" of distilleries a sensible portion of copper, doubtless originating from the still; he has even traced copper in the excrements of animals largely fed on that liquid.—Copper is a very serious poison, and, like others, accumulates in the system.

M. Tisseraud, in his holiday trip to Scandinavia last autumn, draws attention to the consequences of the sudden setting in of winter; the farmers cut the green potato stalks, hanging them on poles to dry, ultimately mixing them with cut straw for their stock. Near Christiana, the frost compelled, in many cases, oats to be cut green, but such as had been sown in rows, instead of broadcast, arrived at maturity ten days earlier, and had thus time to ripen. In Denmark, the country of butter, and which supplies China and Japan, as well as England, with this commodity, the mode of its preparation has completely changed within the last sixteen years; the milk,

while warm from the cow, is placed in vases capable of holding fifty or eighty litres, and immersed in reservoirs of water possessing a natural low temperature of 43°; the churning also takes place at a low temperature, and requires generally 45 minutes; the butter thus obtained is found to be of superior quality. The Danes act on the theory, that to make good butter, it must never be touched with the hands. The butter is worked by means of conical rollers, acting on a plain with sloping sides, to run off the expressed milk. One merchant packs for exportation 25 cwts. of butter per day.

Beet Sugar—Manures for, &c.

The beet sugar manufacturers have issued their annual instructions to farmers; these set forth, that beet not coming up to the standard density will be reduced in price francs 4 per ton for every degree short; they omit to state what will be the increase in prices when the density exceeds the fixed standard. The beet ought to be cultivated in rows eighteen inches apart and nine between the plants, so as to have eight or nine of the latter to the square yard; the seed ought to be judiciously selected, and, above all, marked attention ought to be given to the manure, which should be well mixed with the soil before sowing, and never applied during the growth of the plant. Messrs. Waussen and Corenwinder, accepted scientific authorities, recommended superphosphate of lime as the best manure for beet, producing as it does more sugar than when the plant is dosed into nitrate of soda; sulphate of ammonia is even better than the latter, and sulphate of potash than chloride of potassium; the latter salt prevents the crystallization of the sugar. Nitrate of soda is losing favor as a manure, and should never be applied to beets except with superphosphate. There are 528 sugar factories in France and 5 refineries, employing a total of 83,000 persons.

Preserving Eggs with Parafine.

Two pounds weight of parafine are sufficient to conserve 3,000 eggs for several months; the eggs must be operated upon when fresh: when they will shine like an ivory ball; not the slightest taste of the parafine is detected.

Paris, France, April 17, 1875.

Baltimore County Gunpowder Club.

Messrs. Editors American Farmer:

The Gunpowder Agricultural Club met on the 15th inst., at residence of T. T. Gorsuch. John D. Matthews, President. The subsoil attachment exhibited at the last meeting by Mr. A. T. Love, of Cockeysville, but not operated on account of a slight deficiency of construction, has since been tried by several members, and on the present occasion was found at work on a lot adjoining the farm buildings. The subsoiler was running at an angle of about 45°; however, to gratify some who liked a horizontal position, it was lowered as desired. By this change the pan was merely lifted and broken up, though left mellow as an ash heap, while the previous adjustment stirred and disturbed it with all the violence of a shovel plow. This latter result seemed to be that preferred by the majority. The whole depth reached was on the average 14 inches, viz: 8 for the plow and 6 for the subsoiler. The plowman complained of the attachment augmenting the draft and labor of handling.

Our host, who has always been an ardent admirer of the Berkshire hog, and was among the first to introduce them into this section many years ago, and changed only because he found it difficult to obtain the proper crosses, has recently purchased four pigs (two of each sex) of pure blood. He intends, now, to keep up the breed. Three of the pigs are of the T. S. Cooper stock, crossed on the Cochrane (Canada;) they came from J. B. Longnecker, Dauphin county, Pennsylvania. The fourth pig, a splendid specimen of swine, of the Coffin stock, was raised by Mr. Henry Carroll, of this county. Our host pronounced it the largest pig for its age he had ever seen. It bore every evidence of having been well cared for, which cannot be said of the rest.

The Inspection Committee reported, through their chairman, John D. Matthews. Their report of the examination differs in some essential particulars from the account already furnished, which may be sufficient excuse for inserting the same here.

"*To the Gunpowder Agricultural Club:* Your Committee of Inspection, appointed at the last meeting (held at D. Gorsuch's) submit the following report:

The reputation for system, order and neatness of our host continues to be maintained. We deem it unnecessary to say more in detail of facts with which we are all familiar.

The main matters of interest that attracted our attention, were the experiments with different fertilizers applied to the grain crop last Fall. The application of equal quantities of Maryland Fertilizer and Whitelock's Vegetator (200 lbs. per acre,) side by side in one field, showed, at this early period, but little difference in their effect; both are very satisfactory, but it seemed to be generally conceded that Whitelock's Vegetator looked rather the best.

The appearance of portions of the fields, without either of the above applications, gave conclusive evidence that we ought, more extensively, to use well-established commercial fertilizers.

Upon a small portion of one field, where the Vegetator had been applied in connection with barn-yard manure, it was thought, by some, to be of doubtful expediency on account of the luxuriant growth of straw preventing the proper development and maturing of the grain and smothering the young new-set grass.

Others thought mixing the right plan, using less manure and less fertilizer, and thereby getting better return for less money value. We also noticed a very favorable result from the application of 500 lbs. Poudrette per acre. Some thought it showed quite as well as the phosphates."

After referring to Mr. Gorsuch's case of his cattle and plan of piling manure in a dish-shaped yard, the report concludes with this sentence: "Our host's management shows that he pays great attention to saving and making as much manure as possible."

The committee on machinery submitted a favorable report on the sub-soil attachment.

T. T. Gorsuch objected. He could not recommend the attachment. A two-horse plow followed by a hand with a shovel plow as sub-soiler

would do one-third more work and do it better. D. Gorsuch has given the attachment a fair trial. He has used it on hard ground filled with small round stones and was astonished to find it stick so well. It is true less can be plowed with it. Differs with T. T. Gorsuch as regards the two-horse plow. It is easier to plow 4 or 5 inches and use the sub-soiler than 10 or 12 inches without and turn the whole. J. M. Price has been pleased with it; will give it a more thorough test before the next meeting. Chas. H. Price, (Junior's delegate) had no trouble in keeping the sub-soiler in. Sometimes a stone would catch between it and the mould-board and compel him to stop and take it out; that was his chief difficulty. On hard ground the sub-soiler keeps the plow in and makes it easier for a team to draw or plow running 4 to 5 inches with the sub-soiler attached than 10 or 12 inches without. Thinks it no more labor to the plowman except at corners. Ed. Scott had seen the attachment at work and it seemed to perform well, but he could not say whether he would like to use it. S. M. Price thought some deception had been practiced on the agent in the material used in making the sub-soiler. The shovel is iron instead of steel at represented.

The order of the occasion called for the reading of selections. Our host had read an article on crop rotation. He said in comment that at the commencement of his farming his rotation had been four grain crops, and three of grass. This rotation had been rendered necessary by his limited area and its deteriorated state, in order to support the stock required to carry on his proposed system of improvement. Nevertheless his soil doubled its cropping capacity in eleven years, which is accounted for by the fact that he made every exertion to accumulate manure. He then changed to a rotation of three grain crops and two of grass. He made an effort at different times to adopt a system requiring the removal of but two grain crops. This, however, compelled him to let his land lie one season. He abandoned it and returned to the regular rotation, which he has since continued and would maintain,—that is, he would not interrupt it to take up a field that had failed to set to grass; he would submit to the loss rather than do so. When he fell on his present plan, he took clover lay for wheat, but now he takes it for corn. His system of rotation is not recommendable where land will admit of such intermediate crops as peas, beans, mangold wurtzels, sugar beets, turnips and potatoes; his land is stiff clay. He considers clover after corn, to stand one year, a waste. He would follow corn with rye, if his land were not so hilly. (The use of the corn drill was suggested as a remedy against wash.) It would not do for him on account of the many abrupt changes in the lay of his hills. The question was asked whether Mr. Woolsey's rotation is not corn, grain and grass; and answered "yes." Thereupon the talk became general and departing from the main argument of the article read touched on such topics as extending the rotation by permitting land to lie longer than two years in grass and consequent advantages; the value of lime for stiff clay and its comparative worthlessness on light land, where it should be supplied by potash; profitableness of lime and manure applied conjointly and the durability of barn-yard manure. In this connection our host stated that on a ridge of light soil a plentiful use of barn-yard manure had failed to show after the third crop, which itself was light. He was asked whether he expected more. He replied that on stiff clay the results of good manuring were much more lasting. In his earlier farming it had been his practice to compost his manure in the yard; with not more than half his present stock he had then made more manure than he does now.

The balance of the session was occupied with business matters. Club adjourned to meet June 16th, at the residence of Jno. D. Matthews.

Balto. Co., May 22d, 1875. T. G.

Agricultural Education in Prussia.

Messrs. Editors American Farmer:

Having emigrated about thirty years ago, I can hardly be considered a competent reporter on agricultural schools in the old country; but in my time Eldena, near Greisswald, connected with the university of that city, was considered the standard agricultural academy in Prussia. The different branches of learning were: the higher branches of arithmetic and mathematics, agricultural chemistry, the various theories of farming,—practically illustrated on a model trial farm connected with the academy,—botany, natural philosophy, natural history, physiology, veterinary surgery, theory of machine building, architecture, state economy, jurisprudence.

It required a thorough preparatory education to be admitted to this institution, and generally the superior officers of the different counties (Landräthe) had to be graduates of the Eldena Academy. The institution was altogether laid out for the peculiar state of things in Prussia; and a similar institution would hardly thrive on our free soil, where the best farmers invariably are raised behind the plough.

There are now numerous agricultural schools of a more elementary character throughout Prussia, where practical farmers can receive a fundamental and general education. Like all other schools in Prussia, they are very thorough institutions of learning. But the practical and political views of the people there, and the general state of education, advance the mode of learning in schools; and the general way of acquiring knowledge there is so entirely different from what these things are in this country, it would not do to take any of those schools as a model to found a similar institution of learning here.

There are, generally speaking, two classes of farmers in Prussia: 1. Owners of large estates of five hundred to ten thousand acres and more, who are a still more leisurely class than our former slave-owners used to be. To this class belong the renters of royal domains or large private estates. This class only directs labor, either in person or through their superintendents (inspectors.) 2. Owners of small farms of from twenty to one hundred acres or more, (Bauern) who do most of their work themselves, with the help of their children, or a few hired men and women. Education being compulsory, they send their children to the nearest country or town school,

where they generally acquire a very good education. The last Prussian census proves that among one thousand inhabitants only one illiterate person could be found,—a very small ratio, indeed. Among the French prisoners during the Franco-German war, thirty out of a hundred could not sign their names.

I am sorry that I cannot give you any better information, but I hope that with the advice of better-informed men, there will yet be founded an agricultural school adapted to the wants of this country. Truly yours, A. JACKSON.

Frederick County, Md., May 17, 1875.

Live Stock.

The Improvement of our Domestic Animals.

To the Editors of the American Farmer:

There is no branch of farming that offers a better field for enterprise and the careful expenditure of a small amount of money, than the improvement of our farm stock, by the introduction of a few pure-blooded males, and females too, if the treasury will only admit of the expense.—About five or six yeas ago the subject of short-horned bulls was introduced at some of our club meetings, the result of which was the purchase of one bull and two bull calves from Mr. Philip Tabb, who had at that time some very fine stock in Howard Co., Md. The next season we had reported the sale of ten calves, averaging forty pounds more than from the same cows by a scrub bull; this alone gave a gain of about $3 each on the sale of calves from the ten cows,—quite a good interest on the first cost of the bull, which was $100. With most farmers in this part of the State the temptation of selling their calves is too great to resist; they will generally sell for nearly enough at six weeks old, to buy a two-year old steer or heifer, at the stockyards of Baltimore or Georgetown,—of course the buying must be done at the dull time, in the fall of the year. A few, like myself, have some old fogy notions, and will raise a few calves, and lambs, too, even if they are worth more at six weeks than they will bring at one year old. Several other parties have since bought some thoroughbred bulls, of the short-horn and Alderney breeds; from this small beginning we can now show more than two hundred young half-bloods of various ages. This will, in a few years, add very much to the value of our old native stock, both for beef and butter,—all from a very small outlay of money for the first purchase of the thoroughbred males. Very many of our small farmers do not feel as if they could spare the necessary amount of money to make the first purchase, for such I would recommend that four or five living near should raise the necessary amount, by equal subscriptions, which would make the first cost seem much less, and all could derive the same benefit as by individual ownership.

Or, what I consider much the best plan is for one to own the animal and keep it at *all times in the stable at his place*, so that his neighbors will be sure to find him when needed and charge them a reasonable price for services—say $1.00 or $1.50. At such a moderate price all will see that it is to their advantage to use our thoroughbred bull, as all of his calves will be worth much more either for the butcher or to raise; they will also be saved the annoyance of an unruly bull at all times on the place (except when he has jumped into a neighbor's cornfield, or some other forbidden place.) My own bull (a short-horn) is kept up all the time or nearly so, does not eat a peck of grain in a year, is in fine, thrifty condition on fodder, straw and other coarse food, with occasionally a little hay. By the above plan I get well paid for my investment and trouble of keeping the bull up, and my neighbors show that they are satisfied, as "sedge bulls" are a scarce article. I also have the satisfaction of seeing some good stock at home, and something to take a few prizes at the county fair, too. I would recommend very much the same plan with hogs, too, as one male will answer for several farmers, but be sure that he be a thoroughbred, of whatever breed you decide is best suited to your wants, and then do not rest satisfied with one pure crop, but continue to buy a pure blood to cross on the grade sows, so that the stock will be improving all the time. T. J. L.

Montgomery Co., Md., May 15, '75.

Carrots for Horses.

A correspondent of the *Prairie Farmer* gives the following on the value and use of these roots:

Towards the Spring, when horses have been many months highly fed on corn, carrots are extremely serviceable, indeed necessary. During Winter they should be used sparingly. They used to be given to race horses in far greater quantities than they are now, having formerly had the character of being good for the wind; but perhaps the only merit they can claim in this respect is, that they keep the body cool and properly open, by which they conduce greatly to health and condition, and consequently to clearness of wind. About the same thing may be said of their claims to producing a fine coat; but whatever conduces to health does so, and consequently carrots do.

Carrots should be given in pretty long slices. They are sometimes given cut crossways; this is really dangerous, as horses are extremely fond of them, and, if at all greedy, would be pretty apt to bolt pieces of them whole, which be likely to cause some of them to stick in the throat. When first given they are slightly diuretic and laxative; but as the horse becomes accustomed to them, these effects are not produced. To sick and idle horses they render corn unnecessary. They are beneficial in all chronic diseases of the respiratory organs. In combination with oats, they restore worn-out horses much sooner than oats alone. They should be fed raw, in which state the horse prefers them.

Some persons give carrots with the grain, thinking it tempts the horses to eat their oats, if of delicate appetite; so they might, if perfectly minced, otherwise they will pick them out, and the man may eat the oats if he pleases; for, depend on it, the horses would not; but if he were to make minced feed of them, we should still consider it a very bad plan to give them with oats; for should the horse get

accustomed to such a mixture, he would afterwards refuse his oats without it. For this reason carrots should be given as a separate food; and, if bought at a proper season of the year, by the ton, in the country, they are by no means an expensive one—though they become extremely so in the city when an hostler can persuade his employer that they are necessary for his horses, buys them by the bunch, consumes two of those himself, and, if he is delicate as to conscience, gives the third to his horses; if not, they of course all go the same way. Carrots, if kept in a dry place in sand, will keep a long time, as in *sand* they will keep out of doors, if covered with straw, and then banked up with earth.

Berkshire and Essex Swine.

In the *Farmer* last month the merits of the Chester white and Poland China pigs were set forth by their admirers. The estimation in which the first-named breed was formerly held has been very much lowered by the inferior or counterfeit specimens of it which have been largely distributed by dealers.

Our own judgment is very decidedly favorable to the Berkshire and Essex breeds. We have long had the former under close observation, having indeed been among the very first to introduce them into this vicinity. We have no doubt that these black swine are best for the South, being almost entirely free from skin diseases. They are quiet in disposition, mature rapidly, give the best results from the food given them, and make the finest meat that can be produced.

Advertise your Improved Stock.

An esteemed friend writes: "I would be glad to see more short articles in the *Farmer* from plain practical farmers giving experiences of various kinds that would interest their brother farmers of the State. I have been a constant reader of the *Country Gentleman* for nearly twenty years, and nearly always read all the advertisements first, as I consider them its most interesting part. In the *Farmer* I am sorry to see so few advertisements of improved stock, but suppose this is not all your fault. *Many thousands* of dollars have been added to the value of our stock by seeing advertisements and by acting on them too, and that often when the articles are within a few miles of us."

We echo the sentiments of our correspondent. Our columns are open and we freely invite our readers everywhere to contribute their quotas, however small, to the general fund of useful information. They need not feel any hesitancy about the *dress* of their articles. Farmers too often by habit become averse to writing, and miss the facility which is lost with disuse. This ought not to be. But in any case we can agree, we think, to make the facts presented fit for the press.

The failure of more of our farmers who have improved stock to advertise it is a subject to which we have long thought of calling attention. We have far higher than interested motives. For some forty years we have been interested and directly engaged in disseminating improved types of farm stock, and we have no doubt of the correctness of the views given above as to the increased returns to the farmer from investments prudently made in this direction.

Mr. Cooper's Importation of Ayrshires and Berkshires.

Mr. T. S. Cooper, of Coopersburg, Pa., whose advertisement of Ayrshires will be noticed elsewhere, writes us from the ship before arrival, that he had on board 15 Ayrshires and 43 Berkshire pigs, which he thinks are the finest and most valuable lot that ever crossed the Atlantic.

The *Liverpool* (*Eng.*) *Courier* says of the cattle that they were a splendid lot, possessing all the good points and none of the defects of the breed, and that the pigs were selected with evident care and judgment from the stocks of the best breeeders in England, Messrs. Swanwick, Humfrey and others.

There are a number of representatives of Mr. Cooper's flocks and herds in Maryland, and we should be glad to know of some of these fresh importations finding their homes here.

American Jersey Cattle Club.

The seventh annual meeting of this club was held in April in New York. The following gentlemen were made officers for the ensuing year, all being re-elected except Mr. Chas. L. Sharpless, who replaces his brother, Mr. Samuel J. Sharpless: President, Thos. J. Hand, N. Y.; secretary, Col. Geo. E. Waring, jr., R. I.; treasurer, Benj. L. Swan, jr., N. Y. Executive committee, Chas. L. Sharpless, Penna.; J. Milton Mackie, Mass.; Col. J. Stricker Jenkins, Md.

The club has raised the initiation fee to $100. The members now number 138. The number of entries in the Herd Register to the close of the third volume is, of bulls, 1,355; of cows and heifers, 3,363. A new scale of points has been adopted.

THE NEW YORK STATE SHEEP SHOW.—The annual exhibition of sheep and shearing of the New York State Sheep-Breeders' Association was held at Rochester, on the 6th and 7th ult. Excepting in attendance of visitors, the exhibition was a success in every respect. The animals on exhibition were chiefly merinos, of which there were about 200 shown in three classes. The chief exhibitors of prize merinos were E. Townsend, Ray Bros., Brumson & Marriner, S. B. Lusk, G. Martin, and S. Briggs. J. W. Hardy showed some Delano wool sheep, and Walter Cole the only Silesian sheep. Some fine specimens of the different classes were shown, and the general verdict of the breeders present was that the exhibition could not be excelled in this country. Some Cotswold, Southdown and grade Cotswolds were shown, but attracted little attention.

Poultry Yard.

Brown Leghorns.

A correspondent of the *Country Gentleman* gives this breed the following good words:

There is no denying the fact that the Brown Leghorns are fast becoming a most popular variety, both as a fancy and a useful breed. They are small, mature quickly, the hens come into laying early, and for that reason are profitable. They are easy keepers, being small feeders and prolific egg-producers. They have all the markings and build of good layers, having large combs and wattles, of a beautiful pink-red color, which is always suggestive of fresh-laid eggs. New beginners are apt to be discouraged at first, but experience teaches the virtue of patience and perseverance. I have learned that one must first raise his layers from good stock before he can expect even a moderate return, and fowls purchased rom noted breeders are not always reared with an eye to this important advantage. It is sufficient for them that the breed has a name for producing eggs. Fowls for this purpose must be raised, not made—must have the very best of care and feed, from the shell up, to establish the foundation of a strong, vigorous constitution, in order to support rapid and long continued production, as well as to reproduce stamina in their young. I have every reason to believe the Brown Leghorns will do this and amply repay their own with a good supply of large, fine eggs at all seasons of the year; but there must be a large outlay before expecting a return. The chicks of the Brown Leghorn are hardy—as much so as any variety. The chicks require a certain amount of care until they are six or eight weeks old, and by experience I find this rule to hold good with all breeds and varieties of poultry when in an artificial condition. The Brown Leghorn chicks possess the virtue of feathering early, and thus escape much danger which awaits their featherless brethren, the Black Spanish and Asiatics. The markings of both the Brown Leghorn cock and hen are beautiful—indeed, splendid plumage is a marked characteristic of the breed.

The day is long since past when the questions "Do hens pay?" "Are they profitable?" are undecided. I have had many years' experience, and can answer that I know they do. From the long list of debits and credits, I find the balance in their favor. The hen business (if the expression be allowable) is healthy, pleasant and lucrative; but one must in some measure be born to it (not made,) with a fondness and interest in nature, a close, observing eye, and a mind willing to inquire into and search the mysteries of nature in her own fields, and learn the truth of the unmistakable knowledge she teaches her children; and where pleasure is born, the money value ceases to exist, and the profit accrues; thus labor becomes only a healthful exercise. To one about establishing a poultry yard, I would advise them to put down the Brown Leghorns on the list as a good variety, not only for their useful qualifications, but for beauty and ornament.

Horticulture.

The Maryland Horticultural Society.

The monthly exhibition and meeting of the Maryland Horticultural Society took place on the 18th ult. The two *cafes* of the Academy of Music were well filled with beautiful flowers and plants, well arranged, and making a fine display.

The number of entries was hardly as large as the previous month, but there were more fine specimens shown. The attendance was moderate, the weather not being propitious.

Robert Halliday, nurseryman, on Liberty road, exhibited exceedingly fine hardy rhododendrons and Ghent azaleas.

Mr. W. F. Massey, of Chestertown, Md., exhibited tuberous-rooted begonias, seedling geraniums and pelargoniums.

Mr. James Pentland, exhibited finely grown fuchsias, richardais, variegated daisies, calceolarias, and seedling verbenas.

Mr. Wm. D. Brackenridge exhibited rare begonias, a collection of succulents, a new golden aquilegia from California, recently introduced here, orchids, etc.

J. Fischner, gardener to Mr. J. Howard McHenry, of Pikesville, exhibited variegated zonal and double geraniums, a fine collection of bedding plants and hardy shrubs, coleus and petunias.

Mr. Ezra Whitman exhibited a handsome Lemon tree, some fuchsias, geraniums, petunias, and cinerarias.

Mr. Andrew Patterson, of Waverly, exhibited exceedingly fine fuchsias, pelargoniums and roses.

Mr. Robert J. Halliday, of Baltimore, exhibited a fine collection of foliage plants, including phermium tenax, variegated pineapple and dracenas; also fuchsias, pelargoniums and selaginellas, and two very handsome rustic hanging baskets.

Mr. Thos. Fairley, of Druid Hill avenue, exhibited fine roses in pots, zonal and variegated geraniums and a very large and handsome grafted azalea,—one plant bearing four kinds of flowers.

Mr. John Edward Feast, florist, exhibited an exquisite pyramidal stand, filled with flowers, hand boquets, cut rosebuds and pansies.

Mr. John Feast, florist, on Lexington street, exhibited a fine collection of rare plants, including bilbergias, xerotus, heaths, rhododendrons, anthurium, solanum arborea variegata, also geraniums, fuchsias, new and rare evergreens from California and Japan, &c.

At the meeting of the society in the evening, it had been anticipated that Captain Snow, of Harford county, would deliver an address upon "Orchids," but owing to the change of the day for the exhibition and meeting, he was unable to be present. This was much regretted, as this gentleman is not only a great enthusiast and successful cultivator of this class of plants, but is looked upon as an authority on their culture. He had some 800 blooms of the different varieties prepared to illustrate the text of his address.

In the absence of Captain Snow, Mr. Brackenridge moved that Mr. N. F. Flitton read his address on "Bedding Plants." He first gave an interesting historical sketch of the culture of bedding plants, and then discussed his subject at considerable length and in a very intelligent manner. Mr. Flitton is a well-known contributor of the *American Farmer*, and the main features of his address will be found elsewhere in this number.

A committee was appointed to confer with Captain Snow and ascertain whether he would consent to deliver an address on Orchids and show his specimens at some early day. It is understood that he has replied to the committee that his engagements will not permit him to do this.

The judges of the exhibition, Messrs. Henry Taylor, J. Mowton Saunders and W. D. Brackenridge, submitted the following list of awards to professionals: First premium, $3, to James Pentland, for fuchsias; first premium, $2, to James Pentland, for verbenas; second premium, $1, to R. J. Halliday, for verbenas; first premium $3, to J. Edward Feast, for cut roses; first premium, $1, to Thos. Fairley, for cut pansies; first premium, $3, to Andrew Patterson, for pelargoniums, and the second premium to R. J. Halliday for the same; first premium, $3, to Thomas Fairley, for zonal geraniums; second premium, $2, to James Pentland, for zonal geraniums; first premium, $3, to John Feast, for double geraniums; first premium, $3, to Thomas Fairley for variegated geraniums; second premium, $2, to John Feast for variegated geraniums; first premium, $5, to John Feast for best collection of greenhouse plants; first premium, $3, to John Feast, for ornamental foliage plants; second premium, $2, to R. J. Halliday, for ornamental foliage plants; first premium, $1, to W. D. Brackenridge, for hardy flowering shrubs; first premium, $2, to R. J. Halliday, for hanging basket; first premium, $4, to J. Edward Feast for table design, and second premium, $2, to same for hand bouquets.

The judges awarded the following premiums to amateurs: To E. Whitman, by his gardener, F. Fauth, jr., first premiums, for fuchsias, petunias, cut pansies and zonal geraniums; to J. Howard McHenry, by his gardener, J. Tischner, second premium, $1, for zonal geraniums; to J. Howard McHenry, first premium, $2, for variegated geraniums; to Ezra Whitman, second premium, $1, for variegated geraniums; to J. Howard McHenry, first premium, $2, for bedding plants; to J. Howard McHenry, first premium, $1, for hardy shrubs; to E. Whitman, first premium, $1, for hand bouquets, and to same first premium, $2, for a vase of flowers.

The Society then adjourned.

A Winter Cucumber from Alsace.

[From La Revue Horticole, 16th March, 1875.]

In our editorial of the 16th January last, we have given in *La Revue Horticole* some words of the plant of which we give here the figure and description. From where does it come? Is it a cucumber? Why this name? What are its characters or its qualities? It is to the examination of these different questions that we propose to devote this article. We have no other information as to the origin of this plant than that it is cultivated in some localities of Alsace which have given it the name of Cucumber of Alsace.

WINTER CUCUMBER OF ALSACE, 1-7 Natural Size. LEAF OF ALSACE CUCUMBER.

It is to M. Weber, chief surgeon of the Army, who for the present lives at the Hotel des Invalids, that we owe the introduction of this (courge) goard or cucumber to Paris.

The following are some details extracted from a letter which he has had the kindness to address us on the subject of the Winter cucumber, and for which we thank him very sincerely:

"*La courge of Alsace* which you have seen at my house and which appeared to be new to Paris horticulturists, has been found by me during the month of February, 1874, in the environs of Strasbourg, where it is known under the name of *Winter Cucumber*. We call it thus because we eat it during the Winter in the form of salad prepared as the salad of the common cucumber; however its form and size are rather those of a goard (courge) than a cucumber, besides its flesh differs materially from that of a cucumber; it is less watery, and when it is eaten raw its flavor more nearly resembles that of an artichoke with a taste of filberts (Noisette.) We eat it also cooked; it can be prepared in various ways; prepared with its juice or *en ragout*, it is excellent.

This cucurbitacé has only been grown for a few years past in Alsace; it has been impossible for me to obtain any accurate information as to the time of its introduction; but it is certain that only a few years since it was unknown in Alsace, where at present it is only cultivated in a few gardens. I brought some seed of it to Paris which were sown in the garden of the Hotel of the Invalids, under care of the gardener, M. Bonneau. It was those seed which produced the fruit you have seen and served as the model for the engravings you had made.

I was far from believing at first, that this fruit was new to Parisian horticulture; it was

only to learn its name that I was led to speak of and show it, to cultivators of cucurbitacès (melons) who to my great astonishment declared that it was totally unknown at Paris.

I have sought in vain to find similar fruit at the last expositions of fruits and vegetables held by the central society of horticulture of France. But all that I have been able to see is that the kind most resembling it in exterior form and size is la courge pleine from Naples, but the flesh is totally different.

It matters little whether the courge d'Alsace or Winter cucumber may or may not be a new fruit at Paris; the essential point is that this fruit merits very certainly to be extended (répandu) in our culture and can constitute an excellent resource for our table in Winter. It keeps perfectly until Spring in any place whatever a little airy (aéré;) we can cut it in slices gradually, (from time to time) and leave it, *without the cut surface changing in the least*, and it is sufficient to keep it in any place that is not too close (trop renfermé.) It can furnish all Winter a fresh side dish (Hors-d'ouvre) of very agreeable flavour; it is only necessary to cut its flesh into very thin slices, and season it as we do for cucumber salad; the thinner the slices the more agreeable the taste.

The fruit being very large (about 50 centimètres long, by 15 to 20 centimètres in diameter) can suffice for a consumption quite prolonged. When its flesh is cooked, it has almost the consistence of turnips, but its taste is infinitely finer than that of the latter. For cooking purposes it can be prepared in various ways. I can only say of it, that prepared in its own juice, its flesh has been pronounced exquisite by various persons who have spoken to me of it.

In conclusion it appears to me as the result of all the information I can obtain, that this melon, (cucurbitacé) new or not, it little matters (peu import) deserves to be propagated and to be the object of more complete trials than those to which I have submitted it. I have little to say as to its culture; it does not differ from that of the ordinary cucumber; only it is necessary to note the fact that the fruits which are ripe in August, do not keep so well as those ripening in September and October; it is not necessary therefore to push forward the plants.

With best wishes, &c., DR. WEBER,

Médicin Principal de l'Armée."

Note by Translator.—A melon, known here as the "pie melon," is grown to some extent in our gardens (and sometimes in late watermelon patches for family use,) resembles very much in description and figure *this Winter cucumber*. A specimen sent me last Fall was as large as an ordinary watermelon; in lieu of being mottled as in the figure here described, it was striped like the gipsey melon. The flesh stewed with sugar was made into pies or tarts like the Rhubarb or pie plant. We regarded it as a very poor substitute for our fruit, peaches or apples.

Exchange, Va. NANSEMOND.

Notwithstanding the severe frosts in April, we believe in most sections of Maryland the fruit crops will be abundant. In Virginia, where vegetation was farther advanced, there will be deficiencies in almost all kinds.

Fruit Prospect—The Outlook.

Messrs. Editors American Farmer:

Many of your Virginia readers, as well as those of other States, will this year be deprived of their crops of luscious peaches, apples and other fruits so necessary to health and good living. We should not repine at this state of affairs, but make the most of the advantages still within our reach; and we had as well laugh as cry because of the failure again of these desirable crops. All is not lost, and we should be satisfied to secure the advantages that still remain.

We should recollect that many of our orchards are young, and the trees small. The growth and vitality of these may now be promoted to an extent not possible were the trees loaded with fruit. We can plow, prune and push them into as rapid growth as may be desirable, and thereby cause double the amount of fruit buds for the next season and with less crowding. The vigor and growth of the trees will be better established and their life prolonged. But will our farmers act in accordance with these considerations? We fear many will not; and, because there is no fruit, neglect culture and bestow but little attention where remuneration is deferred. This will be poor economy and bad policy. It will enable those who keep their trees in proper condition to secure future crops when their own trees will prove a partial failure. J. FITZ.

Keswick Depot, Albemarle Co., Va.

Sugar Camp Gourds.

To the Editors of the American Farmer:

I inclose you a few seeds of the "Sugar Camp Gourds." They require very rich ground to produce the largest development of size. I have grown them to hold five or six gallons. The seedsman from whom I first obtained the seed in Ohio, claimed that they have been raised to hold eleven gallons. They are very useful on a farm for many purposes, such as holding seeds through winter, apple butter, lard, &c. Their shape is that of a round demijohn or carboy, with a very short neck. The seeds should be soaked well before planting, or if possible sprouted in a hot-bed, and planted about seven or eight feet apart each way. My peach blossoms are as dead as a barreled mackerel. Very respectfully,

Balto. Co., Md., May 12, 1875. L. W. GOSNELL.

[We have planted some of the seed sent, and distributed the others among two or three friends. Our correspondent has our thanks for them.—Ed. A. F.]

Dwarf Apples for Gardens.

Mr George Ellwanger, of Rochester, N. Y. one of the best of authorities, in a communication to the *Gardener's Monthly*, says his experience has demonstrated that for garden use the true French Paradise is the only satisfactory and valuable variety of the different apple stocks, and that this and the Doucin, the two stocks mainly employed for dwarfing in this country, are quite distinct. The Paradise has an *olive*-colored bark

is of straggling habit, with a tendency to make roots on the surface of the ground, and is not a strong grower. It is perfectly hardy, standing winters where the thermometer goes 20° below zero.

The Doucin is of upright and more rapid growth, with darker wood, and roots running much deeper into the ground. It is a stronger grower, and requires several years longer to come into bearing. These are the only stocks at all valuable to us.

To cultivate the Paradise successfully, it is essential on the stock being transplanted to set it so that the bud remains above ground, in order that the budded part should not take root and thus destroy the dwarfing effect of the stock. On the same account root-grafting dwarfs is a pernicious and deceptive practice, as they are really no longer dwarfs.

For the successful cultivation of a dwarf orchard, the soil must be warm, dry and in good condition; the situation should be open, in order to have the benefit of sun and air.

The distance apart in the orchard, or in rows for borders, should be from six to eight feet; for cordons, fifteen to twenty-four inches will be sufficient. Among the varieties, the Red Astrachan fruited the second year from bud, and most of the others the third and fourth year, the fruits being of the finest quality and of superior size.

Among the advantages of dwarf apples are, that they occupy but little space and come early into bearing; a large collection can be had in small grounds; trees with fruit buds can be transplanted so as to bear fruit the same year; the fruits are not so liable to be blown from the trees; and the size of the fruit, when proper attention is paid to pruning and thinning out, is superior to that of the Standard.

For ornamental purposes there are few trees or shrubs with more claims to beauty than a symmetrically proportioned dwarf apple at the time of its blossoming when robed in delicate blush and white, and emitting its delicate perfume. Then it is almost worthy a place beside some of the finest flowering shrubs—and in Autumn when vegetation has begun to fade, nothing is more striking than the sight of a group of dwarf crabs turning their highly-colored fruits to the sun.

Mr. Ellwanger says a portion of his trees planted thirty years measure as follows: Stem, six to eight inches in diameter; and hight, six to eight feet. These trees have frequently yielded from three to four bushels per tree. Those planted twelve years ago will average: stem, four to five inches in diameter, hight, four to six feet; the largest yielding from one to two bushels per tree.

Mr. E. gives a list of some of the most desirable varieties for dwarfing, which we copy.

Summer.—Astrachan Red, Early Harvest, Keswick Codlin, Bough Large Sweet.

Autumn—Alexander, Duchess of Oldenburg, Gravenstein, St. Lawrence, Sherwood's Favorite.

Winter.—Baldwin, Bellflower yellow, King, Lady Apple, Mother, Northern Spy, Reinett, Canada, Red Canada, Melon, Spitzenburg Esopus, Twenty Ounce, Wagner.

Floriculture, &c.—June, 1875.

By W. D. BRACKENRIDGE, Florist and Nurseryman, Govanstown, Baltimore county, Md.

Lawn and Pleasure Grounds.

A taste for horticultural pursuits may in a great measure be denominated a two-fold one; taken up on one hand as a thing of profit, and carried out in all its varied forms of dry detail in a business point of consideration; on the other hand, an innate love of the thing itself, seems to impel its votaries onwards regardless of all obstacles, whether of cost or labor, in order that their senses and tastes may be gratified. Our feelings without restraint go out toward the latter class, while, speaking modestly, we must cling to the former, so as to enjoy the latter. The Baltimore Flower Mission, though very laudatory in its purposes, has apparently no base of supply of which it can, at any time, conveniently avail itself, save from the conservatories and gardens of a few of its most prominent supporters, while the majority of its members are the mere dealers out of the products of such as through love and much toil have effected, for their own gratification, what they now hand to the agency of others, so that the bed-ridden or unfortunate sufferer may be soothed; all this, we say, is well. But would it not be more befitting to have our own park commissioners organize or set on foot a system of raising hardy flowering shrubs, together with plants under glass, of easy culture, for the benefit of the sick in hospitals, &c. &c.,—the demand to be subject to the approval of the President of the Board of Commissioners.

The agency of the "Maryland Horticultural Society," as suggested by E. T. G. in your April number, cannot with propriety, we think, be entertained,—as no association, however well organized, could supply the indefinite wants of the flower mission; all it could do after effecting the legitimate objects of its organization, would be to hand over to that mission the decaying specimens, that had already served the purpose for which they were designed.

Druid Hill and Patterson Parks, the revenue for the support of which comes out of the public purse, will ultimately, and we may say legitimately, be the proper source from which a supply of flowers for public institutions can be obtained, from what we know of the liberal spirit of our Park Commissioners, as well as the sentiment of some prominent private individuals, having a view to this object; therefore from such a combination we may expect before long to hear of some practical arrangement to meet the presumed demand.

We see people spending money and expending unnecessary labor in cultivating annual, or tropical plants for decorative purposes, while by a little additional cost permanent or perennial plants, could easily be procured. Of such as we here name, viz: Campanula persicafolia flora plena, C. grandiflora (pale blue.) Spiræa Filipendula flora plena. S. aruncus, S. ulmaria flora plena. Gillenia trifoliata. Phlox in great variety, Aquilegia species, in 6 or 8 kinds; among them the A. chrysantha and A. cœrulea of the Rocky Mountains, Delphinium, (Bleeding

Heart,) Pœonias, tree and herbaceous, Achillea ptarmica and millefolia; Lathyrus grandiflora, purple and white varieties; Valeriana rubra and alba, and then there are so many beautiful blue Veronicas and Pentstemons, all of which are favorites of ours, and we think it would be wise were such lasting things more generally adopted. By this we by no means wish to have discarded from the flower *parterre* that vast assemblage of floral treasures which compose such an array of beauty in our gardens of the present day; and as now is the season when all *good* gardeners will be planting their favorites, we would recommend the perusal of an admirable paper on "Bedding Out Plants," read before the Maryland Horticultural Society the present month by N. F. Flitton.

So soon as such shrubs as Spiræa, Wigelia and Forsythia, have done blooming, cut back all old growth, so that new wood may be secured for next year's bloom.

Greenhouse.

The great majority of plants in this department will be beautified by being removed to a sheltered and partially shaded situation, during the summer months; a bed of ashes is good for the pots to rest on, as this prevents the worms from getting into the pots and stopping the drainage. Some people keep their Camellias under glass all the time; but we think they can be kept cleaner and more robust by being placed in a shady place out of doors. Fuchsias unfortunately do not stand the sudden changes of our climate; the heavy thunder gusts with which we are visited during the summer appears to be their greatest bane, and to keep them all the time under glass, the syringe must be used freely, to keep down the red spider, and under such treatment the plants become weak and the flowers small; we have grown tolerable fair specimens out of doors under the shade of a white Locust tree. Azaleas should be placed in an open airy situation, but observe to plunge the pots in sand or sawdust so as to keep the roots cool.

Caladiums and Colocasias, will require a large share of heat and moisture; and the Rex kinds of Begonias will now have to be repotted and kept in a warm shady situation; they all love a rich vegetable earth, with plenty of drainage. Save seeds of choice specimens of Cinerarias, Pansies and Calceolarias. It is also very desirable to sow seeds of fancy Geraniums; no one knows what of good or bad may be the result; the prospect of something good springing up is always pleasing.

Bedding Plants.

[*From a Paper read by* Mr. N. F. Flitton, *before the Maryland Horticultural Society.*

After some historical notice of the rise and progress of horticultural art, especially in England, and an account of the rapid improvements made in the geranium, one of our most useful and popular bedding plants, Mr. Flitton said:

We divide our bedding stuff into two sections: those plants grown for their flowers, and those grown for their beauty of foliage. It is well to remember that Nature is rarely so lavish as to give beautiful flowers and handsome foliage on the same plant.

Considering flowering plants first, we name as appropriate to the purpose under notice, our conditions of climate as to heat and moisture being understood: Geraniums, Verbenas, Bouvardias, Heliotrope, Gazania splendens, Lantana, Lobelia of the Speciosa type, Nierembergia, Œnothera macrocarpa, Ageratum, Penstemons, Phloxes, Salvias, Tropæolum elegans and varieties, Hibiscus Sinensis and Feverfew. To these may perhaps be added some of the Celosias, as cristata and pyramidalis.

Of foliage plants we name Coleus, Perilla nankinesis, Amaranthus, Achyranthus (or Irisine,) Alternanthera, Cerastium, Artemesia, Gnaphalium, Centaureas, Variegated Alyssum, Cineraria maritima Cannas, Dracænas, Santolina incana, Abutilon Thompsonii, etc.

It may be objected that Zea japonica is not included in this list of foliage plants. This, however, we do not think is a suitable plant for decorative purposes. A storm of hail and wind which would not injure a Dracæna, tears its leaves to shreds; and its resemblance to corn does not make it attractive, although it is prettily variegated, whilst its tendency to ripen off too early gives trouble when it is planted for effect with other foliage plants. Nor have we included the Golden Tri-colored section of Geraniums, since they are not at all satisfactory as bedders in this latitude. Nor do we recommend for general bedding out any of the Caladiums except C. esculentum; nor speak well of the Fuchsia for this purpose in our climate, although it is a most useful plant on the other side of the Atlantic.

The finest bed of foliage we ever remember to have had, was composed of Dracænas, Abutilon Thompsonii, Caladiums and Centaurea gymcarpa; but we may add that it represented a money value few would desire to risk in a climate where gusts that would greatly injure such plants are not infrequent.

In the matter of arrangements, it will be well to remember that colors are divided into cool and warm tints. Cool colors should prevail in gardens laid out on gravel, which is itself generally a warm color, and warm ones in those laid out in grass which is invariably cool to the eye. For instance, in gardens on gravel, gray, lilac, yellow, white, blue, green, &c., should predominate; in those on grass, purple, pink, scarlet and orange should prevail. White, however, is equally suitable for gardens of both descriptions, and, unless the gravel is very light, is always effective; and nothing can be more chaste and beautiful than beds, broad margins or lines of white contiguous to grass, whilst it is equally striking in juxtaposition to gravel.

As a practical rule the most intense colors should be placed in the centres of beds, and the less decided tints used for contrasting rings or edgings. Generally, too, the smaller the beds the more liberally may the intense colors, as scarlet, &c., be used, and the larger the beds the greater the number of colors that may be allowed, providing always that they harmonise or contrast, and that the plants are of the same habit of growth, which is necessary to the most pleasing effects.

For example, a bed containing fifty plants of Defiance or Fire King Verbena is a gem of beauty; a larger one containing five hundred plants of the same variety dazzles and offends by its excessive glare. Such masses of color are far more pleasing when toned down by broad margins of complementary or contrasting hues, which impart a charm of softness and subdued beauty. Cool colors—that is mixed hues or plants of no very decided tints—are often used with the happiest effect to soften and tone down the influence of very brilliant ones.

It should also be borne in mind that smoothness and evenness of surface is here an element of beauty, and that to enjoy beauty in masses the eye must be able to see it at a glance. Thus the furnishing of no one bed should be of a sufficient hight to interrupt the line of vision and break the unity of expression, compelling us to look at it in detail only. Every part of a garden, every bed, should be beautiful in itself, but all should appear subservient to the grandeur of the whole. Those who desire more variety in the sky line of their gardens can introduce tall-trained, well-grown plants of Brugmansia, Cassia, &c., or Tropæolum and other climbers, to the centres of their beds. These, however, require taste and judgment in their use, and are seldom either effective or admissible save in circular beds.

A few words perhaps are necessary on ribbon borders, or the planting of long lines of colors. When these borders are of sufficient width, they may be planted with the tallest row at the back and graduating down to the lowest row in front.

One of the most efficient ribbon borders I remember just now was one twelve feet wide graduated from the lowest in front to the tallest at the back, eleven rows deep, bounded on one side by a terrace walk fourteen feet wide, and on the other by a gravel walk five feet wide. The following is the arrangement of the rows: 1, Lobelia speciosa, blue; 2, Cerastium tomentosum; 3, Golden chain Geranium, the flowers kept off; 4, Purple King Verbena, purple; 5, Calceolaria aurea floribunda, golden yellow; 6, Crystal Palace Gem, Scarlet geranium; 7, Ageratum mexicanum, lilac; 8, Cineraria maritima, white; 9, Perilla nankinensis, almost black; 10, Dwarf yellow Dahlia; 11, Crystal Palace scarlet Dahlia; 12, White Verbena.

The Vegetable Garden.

June.—Keep the hoe and rake constantly at work or the weeds will get ahead of you. Attack them just as they peep above the surface and they will far more easily be exterminated.

Do not cut Asparagus too late, or the roots will be weakened for next season. Cabbages for Fall use may be set out, and seed still sown for Winter. Corn ought to be planted every ten days for a succession. Canteloupes, Melons and Squashes ought to be kept clean. Seed for pickles may be sown towards the end of the month. Egg plants need abundant manure, especially in a liquid form, and to be frequently worked. Lettuce may be sown in a moist place. Onions ought to be well worked. Don't allow Rhubarb to go to seed. Sow Ruta Bagas at the end of the month, give some forcing manure to push them ahead. Do not let Sweet Potato vines root, as this diminishes the size of the roots. Give Tomatoes some kind of a support.

HORSE-RADISH.—The *Prairie Farmer* recommends for this vegetable, to heavily coat the ground with well-rotted stable manure, spade fourteen inches deep; thoroughly mingle and pulverize the soil and manure, putting some of the richest and best manure at the bottom, say three inches; see that the plat is well drained; rake down fine, and leave in strips, or beds, six feet wide and any length desired; then procure a dibble one foot long, and a board six inches wide and six feet long, to lay across the bed to stand on, and line your rows; then make a hole twelve inches in depth with the dibble, have fresh horse-radish, cut in bits with bark on, drop a piece into each hole, and push to the bottom with a smooth-ended, padded stick; then pour in sand until the hole is full; the rows six inches apart, and four inches apart in the row; sprinkle gypsum, at the rate of one gallon to each square rod, on the top, and you will have an abundance of long, straight, smooth roots, that will sell in any market.

Agricultural Calendar.

Work for the Month—June.

Up to the time we write (May 18th,) the season continues backward and the pitching of all the Spring crops will be far later than usual. The seeds already in the ground have been very slow in coming up, and farmers in almost every quarter we fear will be inconvenienced by the sudden transition from Spring to Summer which seems now promised. Under these circumstances it is the more necessary for them to use extra diligence and energy in their operations, in order that their work may be kept up to, or ahead of, the season.

Corn.—On warm land, in good heart, there is little danger of not making a crop, if a due share of judgment is exhibited in connection with proper energy. A handful of some good fertilizer in the hill will give even late planted grain a push ahead which will effectually secure its maturation. Nothing is better for this purpose than fine bone dust and unleached wood ashes, mixed together a day or two previous to use in the proportion of two parts of the former to one of the latter, and a moderate handfull scattered in each hill. Hen manure and plaster, or those substances with ashes added, or a good ammoniated super-phosphate, will be found equally useful applied in this way to give a vigorous start to the plant.

Root Crops.—It is full late for *Sugar Beets* and *Mangels*, but a fair crop may still be had if they are sown now. We have given in previous issues some detailed suggestions as to their management as well as of *Carrots* and

Parsnips, which may also be still sown to advantage, if the land is in good order and of promising fertility. *Ruta Bagas* are useful for almost every kind of farm animals. They are easily raised and kept, very productive under fair treatment, and nutritious for sheep, cattle or swine. They are sown here from the 20th of this month to the 15th of next, early sowing being preferable as giving a chance for repeating if the fly is destructive to the plants.

The soil best adapted to Ruta Bagas is a rich sandy loam thoroughly prepared with plow and harrow. Good fertilizers to be applied,—bone dust, super-phosphates, and ashes. The rows should be about 30 inches apart, and the plants thinned so as to stand about 10 inches in them. Vacant spaces may be filled by transplanting. Sow the seed as soon as may be after the ground is prepared, as it germinates sooner, and is thereby more apt to escape the fly. A hand-drill is the most convenient way of sowing the seed, or it may be dropped at intervals of about a foot in the rows and covered by the hoe. The plants are safe from these insect enemies as soon as they get into rough leaf; hence the importance of stimulating their growth.

If the fly does appear, dust over the plants, when the dew is on them, sifted ashes, plaster, air-slaked lime, &c. Commence to cultivate as soon as the plants appear, and keep the ground light and open, working between the plants with the hoe until the leaves interfere.

Potatoes.—In most cases we think the earlier that fall potatoes are planted after this date the better, but the experience of others is different. All must agree, however, that a good clean soil and careful cultivation have as much to do with the result in many cases as the season.

Tobacco.—Upon the destruction of grass and weeds, with thorough and constant cultivation the success of this crop very largely depends. As a rule, we think, the earlier the plants are set out the better.

Millet and Hungarian.—May be sown now at any time and will be found convenient either for cutting green or for curing. In either case they should be cut before the seed fully matures. Horses and cows both relish these plants and they seem to agree well with them.

Corn for Soiling.—This ought to be sown in good ground when you have it to spare; what is not wanted for feeding green, you can cure for Winter. Sow in drills as recommended last month and run the cultivator through the rows two or three times.

Buckwheat may be sown this month for turning under. For grain it is usually sown later. A rich sandy loam seems best suited to the production of the grain, but stiffer soils will do if rich and well prepared. Green or unfermented manures are unsuited for this crop, for which suitable applications are found in the manures of commerce, such as super-phosphates, bone dust, and ashes, or well-rotted composts. About three pecks of seed, broadcast, suffice for an acre.

Harvest.—Set about your preparations so as to have everything ready in time. Implements ought to be on hand and in order. Hands ought to be engaged in advance. Better have one too many than be one short. Casualties of many kinds are apt to diminish your force as the work proceeds. See yourself as far as may be to the preparations, and when active work begins you will find it much advanced thereby. One thing is the providing of ample harvest *stores*. This ought not to be neglected. Good material well prepared and with time to enjoy it will conduce largely to satisfaction among your laborers. If you need any machinery select it at once. All of the best-known and most reliable kinds are of course represented in our advertising pages.

Cutting Clover.—Cut as soon as may be after fairly in bloom, allow to lie in the swarth four or five hours and then put up in small cocks, which are turned over when the dew is off next morning. Lightly spread out and made into large cocks, it may be secured the following day if no rain has fallen upon it. It will then be found fragrant and nutritious, which is not the case when it fully ripens its blossoms and loses its leaves.

Cutting Grain.—Do not delay this until it is dead ripe. Cut when the straw is beginning to turn yellow below the head, it is then fine in quality, weighs more, and works up better than when the woody fibre fully matures.

The Maryland Agricultural College.

One of the most intelligent farmers of Maryland, and who in its infancy took considerable interest in this institution, writes us as follows:

"I agree with you entirely in the views you have expressed concerning the college. It should be a school of Agriculture and nothing else. Its corps of instructors should be the best practical farmers, botanists, chemists, farriers, &c., that could be employed. The languages and belles-lettres should be secondary. The students should be taught the use of every tool; how best to work every soil and produce every crop; how to perform every labor on the farm, in the orchard, nursery, garden, stables, &c. In short, its graduates should be as competent to manage any farm as successfully as are those of West Point and Annapolis to command regiments and ships.

I know nothing more of the condition of the institution than as represented in the papers, and I should suppose it would be very unsatisfactory to the present board of trustees. It is to be hoped some good will result from its agitation by the press."

Anne Arundel, May 15th, 1875.

Another, in Montgomery Co., writes:

"It is refreshing to read what you say—with facts to show the present condition of that high-sounding institution, the Maryland State Agricultural College. The name is good and the intention in first founding such an institution was for the general good. I admire your determination to show it up. * * * * * It is high time to call a halt, and to tell the Maryland farmers, in plain terms, the things they know not of. * * * * Reforms can never be brought about without first finding the evil and choking it off, just as you have done. Let me congratu-

late you on the very plain and forcible manner in which you have handled the matter."

What follows is from a graduate of the college, a practical farmer and a gentleman of position and influence in the State. We do not wish it understood that we object to the most liberal education being given to farmers which it is practicable for them to receive. What we do object to is that at an agricultural school they should have no opportunity of learning something which will be directly useful in the future practice of their art:

"As I take it, it should be *primarily* a college, for thorough instruction in everything pertaining to agriculture, practical and experimental, as well as a ready and complete institution for enabling a farmer to attain the highest rank in his calling by having opportunities for at least laying the foundation for an education in law, medicine, engineering, for merchandising, the editorial chair, and I see no objection to navigation and soldiery.

I fully appreciate and endorse, though, what you recommend as to the practical training in all the details a farmer ought to know, but I do not think it will cover the whole ground. A farmer may work hard, make both ends meet, and sleep well while it is dark, by planting his own seed and doing his own marketing; but the intelligent, educated farmer whose *eye* is over everything and whose management is skilful, has the advantage over his more practical plodding neighbors, and has room for a more widely useful place in society."

From Baltimore Co. we have the following, from a gentleman eminently qualified to discuss the subject:

"I fully concur with you in the skeleton of a curriculum to be laid down to be pursued by our agricultural schools. It is all nonsense to think of Latin and Greek, French and German, in such a course. The first two require years of study to gain anything like a fair or passable knowledge of them, and then it is of no earthly practical use to a farmer. Even the short space allotted to chemistry, mineralogy, botany and veterinary art would necessarily be scarcely sufficient to obtain such knowledge of these branches as to render it of familiar and practical use. * * * I am glad you are giving your attention to the matter of our own State school, and doubtless your acquaintance with the subject and your earnestness in exposing its deficiencies will be attended with the success they deserve."

Our correspondent who sends the following, will notice, doubtless with sorrow, that his ideal school, where a boy may learn everything, is not now likely to become an established fact.

Mr. Junior Editor:

It seems to me that you sanguine temperament people are never happy unless you are pitching into somebody or something. At present it is the agricultural college that raises your ire. Now, as for me, I have been particularly struck with the management of this institution for the last few years. Innovations have taken place, which, to those who only look at the surface of things, may have appeared not to be in accordance with the original design of the institution: for instance, the adding of that nautical department. As far apart as agriculture and seamanship may appear at first sight, the analogy is nearer than one would suppose at a glance. The sailor ploughs the ocean, and the farmer the land; both are entirely dependent on wind and weather for success. And there is no telling where a boy may bring up. I have seen many sailors turn farmers, and farmers end by being sailors. Who would have dreamed when you were there in the chrysalis state, that you would have turned out a full-fledged editor?

It is, I believe, true that the number of students is reduced to thirty-five, but by concentrating the talent of the whole faculty on this small number, we may expect something brilliant, and as they have a regular old salt to teach seamanship, we may avoid the dilemma in which a book-taught middy was placed, who, put in temporary command of the ship to show his proficiency, was using his book of directions to put the ship in stays. He had gone through the formula, "Hard a lee," "Tacks and sheets," "Main top-sail haul," when, unfortunately, while his eyes were off the book, a leaf blew over unobserved, and, to his astonishment, he found the next order was "Let go the Anchor," and he in mid-ocean!

I think the next legislature, in place of withdrawing its appropriation, should have a vessel built and stationed on the Chesapeake bay, where these young sailors could get the finishing touch. The vessel would serve the double purpose of a school, and could be used as a pleasure yacht for the faculty, board of directors, and even the Governor might be induced to take an occasional trip to see what proficiency the scholars were making. A suitable vessel could be built for $50,000, and as she would only be needed in the Summer, could be kept at from $1,000 to $3,000 a month, according to the number of pleasure trips. It would be a good way to spend part of the $400,000 that the State is to get from the Baltimore and Ohio Railroad.

It is my opinion that a chair of Divinity might be added, with decided benefit to all concerned. A second-hand D. D. or lecturer might be picked up cheap. The thing would then be complete. The boys then could learn to preach a sermon, handle a ship, plant corn, unlimber a gun, or shear a sheep. You remember that poem that, in your college days, you used to read on the sly, I mean Byron's Don Juan? You recollect Don Juan's mother, pious old soul, with an eye prophetic of that hopeful youth's future wants, took care that he should be taught *everything* that might be needed.

Sagest of women, even of widows, she
Resolved that Juan should be quite a paragon,
And worthy of the noblest pedigree,—
(His sire was of Castile, his dame of Arragon.)
Then for accomplishments of chivalry,
In case our Lord, the King, should go to war again.
He learn'd the arts of riding, fencing, gunnery,
And how to scale a fortress—or a nunnery.

Yours, &c., PROGRESS.

A number of other letters received show that no little interest is felt through the State as to the disposition to be made of this subject.

Meeting of Trustees of the Agricultural College.

A special meeting of the board was held on the 11th ultimo. All the trustees on the part of the stockholders were present except Captain Hardcastle, and an invitation having been extended to the representatives of the State, they were also in attendance.

The board organized by electing as president the Governor of the State. We are not yet advised positively whether that officer will accept, but we are informed that it is probable he will not, in which case it is understood Mr. Charles B. Calvert will be elected to the position.

The Registrar was instructed to notify the president, professors and other officers of the college that their services would not be required after sixty days.

It was then decided to reorganize the college and to limit the number of professors to three, namely, of Agriculture, English and Mathematics, with two assistant professors, if, and when they become necessary, the duties of the assistants to be determined upon hereafter. The president of the college is to be chosen from the incumbents of the three chairs named.

A plan for extinguishing the debt of the corporation was agreed upon, it consisting in setting apart as a sinking fund, for such length of time as may be necessary, a sum equal to about one-half of the aggregate appropriation received annually from the State and the United States; the college, in the meantime, to be conducted under an economical administration by the faculty, reduced in numbers, as stated.

An executive committee of three was appointed to take a general supervision of the affairs of the college and to report to the board at its regular meeting, which will be on the 9th instant. The committee consists of Mr. Chas. B. Calvert, Chairman, and Messrs. McHenry and Whitman.

Maryland State Agricultural Society.

The regular monthly meeting was held on 6th ult., President Davis in the chair. After the usual preliminary business was attended to, the subject—"manures"—selected for discussion was called up, and Mr. Wm. Webster, of Balto. co., opened with some remarks upon the superior value in many respects of barn-yard manure over either mineral fertilizers or guano, but feared that many of the farmers of Maryland did not appreciate its true value, allowing it to waste away without being collected and properly cared for; he cited a number of cases where it had produced greater results than phosphates.

Mr. Wm. Warren, of Harford county, spoke briefly on the subject, devoting himself mainly to a description of the manner in which barn-yard manure should be cared for, and its superiority as a soil preserver over all manufactured phosphates. Mr. Sands also made some remarks.

Mr. E. Whitman being called upon by the president, as to his experience in the use of manures upon his garden, said, that having but little stock from which to obtain barn-yard manure, he was obliged to depend mainly upon the phosphates of commerce. He bought stable manure, however, occasionally, from his neighbors, and preferred to use it, when obtainable, than the mineral fertilizers.

The chairman then offered the following resolution, which was adopted:

Resolved, That the true object of the farmer should be to increase the value of his land by enriching it, while at the same time deriving his support therefrom.

Another resolution, as follows, was then adopted:

Resolved by the Maryland Agricultural Association, That a committee of ten or more active members (acting under the direction of the president) be appointed to solicit from manufacturers and others of Baltimore, articles for exhibition at the approaching State Fair at Pimlico. Said committee to be authorized to arrange with all exhibitors for any space they may require in the exhibition hall, or elsewhere on the grounds, at the established rates. The city to be regularly districted by the committee and thoroughly canvassed in the interests of the Society, for the purpose of securing a full representation of all Baltimore industries at the annual exhibition in September next.

Mr. Davis then announced that the subject for discussion at the June meeting would be "Feeding Cattle." Mr. R. Harris Archer will open the discussion, and Mr. Wm. Woolsey, of Harford county, is expected to be among those who will give their views on the subject.

On motion the meeting adjourned.

The Use of Fertilizers.

Our views on this subject as editorially expressed in the April No. of the *Farmer* seem to receive an endorsement from the editor of the Report of the Department of Agriculture for March, —published subsequently,—his conclusions being based upon the returns to the Department of answers by a large number of correspondents to questions on the use of the fertilizers of commerce. He says:

"First, the use of fertilizers is becoming more general and more discriminating; second, few, if any soils in the country are so rich that they cannot be made more productive by judicious fertilization; third, farm-yard manures are the best for general use; green manuring is the cheapest means of soil renovation, and commercial fertilizers are useful for quick results and for specific purposes."

Effects of the Use of Paris Green.

Mr. McMurtie, the chemist of the Department of Agriculture, after a series of experiments to determine whether the arsenical compounds used to destroy the potato beetle would or could be absorbed by the growing plant in quantities sufficient to be dangerous or deleterious to animal life, concludes that no arsenic can be absorbed and assimilated in this way by plants in the process of growth; and with the quantity of Paris green usually applied to the acre, no effects upon plants or their consumers is possible This view is the one generally received now by chemists.

The Farmers' Club of Baltimore County.

Messrs. Editors American Farmer:

The Farmers' Club of Baltimore county held their meeting for May at the house of Mr. James Baldwin, in Long Green, with a very full attendance of members, this being the meeting at which each member is required to furnish a statistical report of the products of his farm for the past year. The discussions on the reading of these reports are found to be interesting and highly instructive, and one most important fact clearly established, that the farmer who judiciously expends most time and money to bring his lands into a high state of cultivation, invariably reaps a larger reward for his labor and funds expended.

The reports for the wheat crop for 1874 varies from 8½ to 20 bushels per acre, averaging on about 400 acres, a fraction over 16 bushels per acre. The corn, as reported from 6½ to 14 bbls. per acre, averaging on about 350 acres 8½ bbls. per acre. The grass crop, as reported from ¾ to 2 tons of hay per acre, and averaging on 406 acres 1¼ ton per acre. The oat crop is reported as light. Potatoes almost a failure, owing to the ravages of the bug. Some of the members engaged in dairying, make most favorable reports, having realized, in butter, over $91.00 per cow, besides the calves and a large amount of pork raised from the milk. The reports on feeding sheep and cattle are very favorable, as having furnished a ready market at full prices for hay and corn, besides a large amount of manure, which, to farmers in this section, is the great agency for future revenue, besides a great saving in not having to purchase so largely of manipulated fertilizers.

Joshua R. Green read an interesting essay on the raising of stock and the proper mode of feeding and taking care of the same, very clearly showing that with proper care in the selection, the largest return in the way of profit is realized from the most liberal expenditure of care and feed.

S. M. RANKIN, *Secretary.*

A Proposed College of Horticulture.

Mr. John Jay Smith, the former editor of the *Horticulturist*, wants to have a college of horticulture. In a recent letter to that journal he says:

The successful cultivators of plants and trees in America have mostly emanated from the Government gardens of Great Britain, such as Kew and the botanical gardens of Edinburg and Dublin, etc. If we had a little government patronage, such as has been begun under that intelligent director, Wm. Saunders, at Washington, enthusiastic lovers of the art would be created among us. I ask if it is not now a good opportunity to create a great college of horticulture, taking the great conservatory erecting for our centennial exhibition, which is to be a permanent structure. There is money in the business; governments, State and national, can do no greater service to our country than to inaugurate a college of horticulture. Agriculture has received very great encouragement, and has profited thereby; why should our art be so entirely ignored in public appropriations? The beginning at Washington should be imitated in every State.

The Centennial Exhibition at Philadelphia, to open May, 1876.

Mr. Burnet Landreth, of Philadelphia, has been appointed chief of the Bureau of Agriculture and Mr. Chas. H. Miller, of that of Horticulture.

In the agricultural department it has been determined to have an exhibition of live stock in September and October, 1876, as follows:

Horses, mules and asses, (as one class,) from September first to fifteenth. Horned Cattle, (of all varieties,) from September twentieth to October fifth. Sheep, swine and goats, (as one class,) from October tenth to twenty-fifth. All animals exhibited must be of pure blood, (trotting stock and fat cattle excepted.) And all animals, even though they be thoroughbred, which are not highly meritorious, will be excluded.

Exhibitors will be expected to provide for feeding their stock, but the Bureau will furnish, at cost prices, all forage and other food, at depots conveniently located within the grounds.

Exhibitors will also be expected to furnish their own attendants, on whom all responsibility of the care of feeding, watering and cleaning the animals, and also of cleaning the stalls, will rest.

The Commision will erect ample accommodations for the exhibition and protection of Live Stock, but contributors who may desire to make special arrangements for the display of the stock will be afforded facilities, at their own cost.

Rings will be provided for the display and exercise of horses and cattle. It is highly important that all who design exhibiting should now make application, as the extent of preparation necessary can only be regulated by an estimate based upon actual demands.

An exhibition of poultry will be held from Oct. 25th to Nov. 10th.

Inquiries may be addressed to the Chief of the Bureau of Agriculture, Philadelphia.

Blood will Tell!

Mr. Thos. J. Lea, of Montgomery, says he sheared his sheep a few days before writing, and that "ten yearlings made 112½ lbs. of wool not washed, but very clean and free of tags. Two were rams, seven ewes that were not bred, and one ewe that had a lamb,—the latter spoiling the average, as she only made 7½ lbs. The nine made 105 lbs. or nearly an averege of 12 lbs. They were a little over one year old, were all sired by a thoroughbred Cotswold ram imported by M. H. Cochrane, of Canada, and many of them out of ewes that were bought at the scales in Baltimore for about $4.

"If any other breeders have similar experience, would they not do good by telling us about it, so that if we are behind them we could try a little harder next time? One neighbor reports thirty-three sheep and 113 lbs. of wool. So has not blood told in this case?"

[We are always glad to receive such bits of experience, and we agree with Mr. Lea that much good would result from mutual interchange of facts whose narration will stimulate our farmers to improvement in any and every branch of their business.—*Ed. A. F.*]

The Rye Crop—Its Comparative Value.

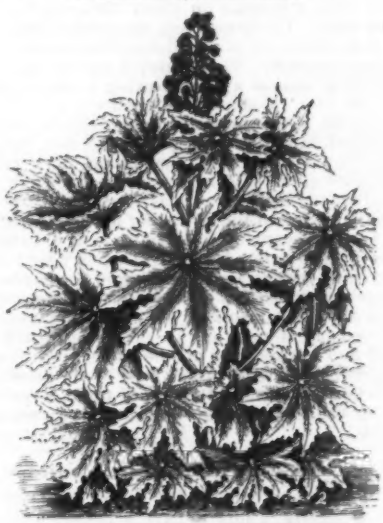
Our own experience with the rye crop has convinced us that it is a safer and more profitable crop decidedly than wheat; and we also believe the corn crop is superior to either in these respects. The editor of the Boston *Journal of Chemistry*, himself a farmer, gives the result of his cropping of rye, and although he puts the price of the straw at a very low figure, yet shows that the yield of an acre was decidedly remunerative. With us the straw generally sells for twice and more frequently three to four times the price obtained by the editor. The general remarks of the *Journal* are worthy of the consideration of every farmer:

"A hundred times have we said to farmers, cultivate less land, and put every rod of that which is cultivated into high condition. It is an axiom in successful farming, that one acre must be made to give returns equal to four, under the old system of New England farming. Make an acre give you eighty or one hundred bushels of corn, or thirty-five bushels of wheat, the same of rye, or three tons of hay, and then you are on the road to successful farming. You cannot afford to drudge away upon your land which gives you but one-third of these results. We have one measured acre of land which for twelve years we have studied carefully, and kept an account of the expenses and value of crops, and it has afforded us much instruction. Last year the acre gave us thirty-five bushels of summer rye, and about two tons of straw. The rye we sold the present Spring for $1.25 per bushel, and the straw had a cash value of five dollars per ton; the cash value of the crop was therefore $93.75, and if from this we deduct the expenses so far as they can be fairly estimated, about $28, we have a clear profit of more than $65 from the acre of land. Now if a farmer has ten or twenty acres under cultivation, giving like results, they afford him a fair income, and with the returns from other farm departments, the business of farming does not appear pecuniarily bad. The truth is, farming must be studied, and well considered; it must be conducted as a merchant conducts his business, with intelligence, forethought, and good common sense. Farmers must look upon their land as a merchant does upon his merchandise, and the question to be pondered is, How can I make it pay me the best profit? Farming, that is, the right kind of farming, is a good business; we insist upon it, it is a good business for a young man to follow."

Lime and Salt for Wheat.

At the December meeting of the Genesee county, N. Y., Farmers' Association the following letter from John Johnson to H. T. Brooks, was read:

Your letter was received two days ago, but being now nearly eighty-four years old, I find writing quite a burden. I used lime from 1829 till 1844, at from forty to fifty bushels per acre, and found a large profit on dry land, but no benefit when wheat would heave out. In 1844 I limed 16 acres, with 50 bushels per acre, and I never saw wheat to equal that. Losing all my crops in 1838 by a hail storm, and nearly all my wheat crop in 1848, it crippled me in credit and funds, so that I limed none since. I commenced tile draining in 1838, and found that was the starting point for successful farming, and expended what I could raise in that way. It took me twenty years to finish my draining. Lime is a preservative from rust, but no better than 300 pounds salt to the acre. Salt makes wheat ripen four or five days earlier. It saved me an immense amount of wheat during the midge years. In 1853 a farm joining mine gave seven bushels of wheat to the acre, while mine averaged twenty-nine bushels. Salt and draining did that. I think lime will do no good on light loam or sandy soils, but it makes stiff soils friable, and they feed the crops better.



Ricinus, or Castor Oil Bean.

We give from Mr. Vick's Floral Guide a cut of this ornamental foliage plant, which, as he says, is of stately growth and tropical appearance. With other ornamental-leaved plants they make a most attractive bed, and are also desirable when grown as single specimens. It is not too late to still plant the seeds, and a small paper of them will produce enough plants for an effective group.

INJURIOUS INSECTS.—From every quarter we hear of the ravages of the insects. In Maryland the potato bugs abound; among the orchards and nurseries of the Eastern Shore the aphis is working great injury. At a recent meeting of the Maryland Academy of Sciences, Col. Wilkins was introduced to the audience and told something of the work of this minute foe of the peach, which abounds already in almost countless numbers. Its destruction opens a practical field for the exercise of the ingenuity of of our savans.

The True Theory of Farming.—No. 7.

Editors American Farmer:

From the remotest historic periods, ground, or soil, composed of clay, sand, lime, &c., has existed on parts of the earth's surface.

Its immediate origin, or the period that may have elapsed during its formation, is immaterial to the present inquiry. That the soil, for the most part, in our own country, is *not* derived from the rocks on which it now rests, is clear, any theory to the contrary notwithstanding.

That its origin arose from infinite wisdom, and its object had reference to the human race, we can have no doubt. This view of the subject may shed some light on what follows.

The progress of science discovers the same unbounded wisdom pervading the wondrous work, whether we refer it to "chance," "cause and effect," or to Jehovah. Whatever name we give it, it is still the same incomprehensible, omnipotent power.

Independent of the sacred revelation, the developments of natural science prove its intelligence.

However remote it may, at first glance, appear, we must search the *purposes*, examine the *tendencies*, and look to the final results of material phenomena, fully to secure and enjoy their benefits, and to escape the evils entailed on ignorance.

As to the constituents of our physical bodies and those of inferior animals and plants, and whence immediately derived, we no longer doubt. By chemical tests they are resolved into, and found to be derived from the earth and its atmosphere.

Without some knowledge of the principles involved in the conversion of this dead matter into plants and animals, it is impossible to attain the highest success in agriculture, and would doubtless, ere long, be impossible to support the human race.

These *laws* have been fixed by the creative power, whatever we may call it, and have undergone no change.

All *bodies* are undergoing unceasing change, and may, finally, no longer serve their present office in reference to the human race.

But the *laws*, so far from change, or sympathy with mutation, in their ubiquity, in themselves immutable, are the source and arbiters of all change.

In remote antiquity when these, now essential, developments of science were unknown and unnecessary for the sustenance of man, the sacred announcement was made that the physical body of man was made of earth.

This declaration must have been received, by the cotemporaries of the sacred historian, as the announcement of the display of miraculous power, over the ordinary course of nature's laws, and may have been so understood by himself; for he appears to have been ignorant of the revelations of natural theology or science, that now confirm his statement, or at least not to have been commissioned to explain them.

The revelations of modern science have been arrayed by some of its votaries against those of inspiration. And such are the mistakes to which all special investigators are liable.

So far from antagonism, the sacred account is *explained* by the discoveries of science. Science verifies, not only the original fact, but the further truth, that man, by unchangable laws, is so made of earth to-day, and explains, already, to some extent, how, and by what special materials made, and their proportions in the body.

The sacred account is equally brief, and with reference to science, unsatisfactory, as to the origin of the *vital* part of man.

It appears, however, to have emanated immediately from the Creator, and, therefore, not necessarily subject to decomposition and loss of identity with the earthy part of the body.

This emanation from the Creator appears to have been transmitted, like the germ of the earthy part, through the creature to the innumerable hosts that have since peopled the earth, preserving, doubtless, the same original immediate relation to the Creator, obeying the law inscrutable to us as the great planets have ever kept the prescribed motion imparted and directed by the same Omnipotent First Cause.

Science has made little progress in explanation of the *vital* principle, other than that by inherent force, under certain conditions, it assumes control of dead matter, and directs the chemical forces of combination; thus ever creating plants and animals of earth and air.

Even less progress has been made in discovering the difference between the manifestations of the vital principle as exhibited, on the one hand, in plants, and on the other in animals.

Still less light has been shed on the revelation of the continued existence of the vital part, after surrendering its control of the chemical forces in the corporal body, resulting in the death and decomposition of the latter.

We know no life independent of a physical body, and must attribute the immortal part to the incomprehensible power of Him who made them to dwell for a time in unison, and is able to sever the relations, thus destroying the one and saving the other. As we have seen, revelation asserts, and science confirms, that the earthly part returns whence it came, and we may well conclude that the part emanating from the Creator, returns to God from whom it sprang.

But, however much we may fear a part of His great work cannot be understood without some view to the grand purposes of creation, we must confine ourselves to the life and death of plants and animals, and leave the balance to theologians.

If man was born to starve, or to suffer the ills of the life associated with clay without the hope of another, and nearer approach to Him who gave it, it matters little how soon the final consummation comes.

But as from generation to generation we grow weaker in body, and, in a like ratio, move intellectually towards the great source of existence, and each labors for those to whom he makes his last bequests, even the secular duties of the farmer seem narrowed to serving the coming generations.

This cannot be more effectually done, nor the works of the Source of all more greatly magnified than by increasing the capacity of the soil for the support of increasing millions.

The laws of nature, whether under the exclusive control of chemical forces, as in decomposi-

tion, or under the same subservient to the vital forces, as in the organization or growth of living bodies, are *universal* and *unchanging*.

That is, the same *conditions* which organize or decompose plants or animals at one time or place, will produce the same results at another time or place, however remote.

We, therefore, have the experience of the past, and the general principles or natural laws evolved thereby, called science, to enlighten our pathway. If we disregard these we are but as infants in unavailing toil; and then, with what we might add to the store of knowledge by close observance, are lost to future generations, who stand more in need of light as population increases and bad farming prevails.

At the basis of agriculture lie the principles of organizing and decomposing bodies. Upon a knowledge of these and skill in their application to practice, depend the life, growth and perfection of plants and animals, which is the foundation of society and the wealth of nations.

To avoid future repeated explanation, it may be said that all bodies presenting no trace of organic structure are properly termed *inorganic*. All possessing vitality or traces of organic structure are termed *organic*.

The word *mineral*, so often used *in this connection*, means the same as *inorganic*.

These two grand divisions, comprise all forms of matter.

The diamond and marble are examples of fixed or solid inorganic bodies.

Carbon, in a state exhibiting no trace of organism, whether free, as in the solid form of diamond, or combined with oxygen in carbonic acid gas, also oxygen, hydrogen and nitrogen, as they exist in atmosphere or in other unorganized bodies, are examples of *inorganic* bodies. They are all also called mineral, as distinguished from vegetable and animal matters.

When any of these are combined in, or compose solid bodies, they may be described as *fixed* Carbon in the form of diamond is a *fixed inorganic* body; in carbonic acid, as part of a *gaseous inorganic* compound, is *inorganic;* in charcoal, as a vegetable substance, a *fixed organic* body.

In relation to the three grand divisions of matter into the animal, vegetable and mineral kingdoms, the same substance of carbon is either animal, vegetable or mineral, whichever form it has assumed; and so of all other bodies in respect of the condition in which they at present exist.

The epithets organic, inorganic, solid, liquid and gaseous, are relative, referring to the present state of the body described. When therefore gaseous compounds of the atmosphere, or solid or liquid constituents of soil form parts of plants or animals, they are alike organic, and when decomposed are alike inorganic.

Organic bodies exclusively compose the animal and vegetable kingdoms.

All substances may, and are supposed by many to have originated in, or been derived from the mineral kingdom. It therefore obliterates all distinction to say that a part of a plant, or animal, is *mineral or "inorganic,"* because it is found in the ashes on decomposition, or *"organic"* because it passes away in the form of gas. No such distinctive feature exists between organic and mineral matters.

The mineralogists tell us that the term mineral now embraces all inorganic bodies, whether solid, liquid, or gaseous.

Then we are told by vegetable physiologists that gaseous bodies are *organic*, merely because they once inhabited an organic structure, which is now decomposed; and yet that the ashes from the same structure are mineral, because the organism is broken up! Nay more, they speak of the *mineral* constituents of a plant or animal while they reside in it, as opposed to the organic constituents, by which latter they mean the mineral constituents derived from the air, as distinguished from the mineral parts derived from the soil. So it comes to this, that no structure is completely organic, but all are *quasi* organic, as if the soil food, combined with water and absorbed by the roots, is not as completely changed and assimilated into the vegetable as is the atmospheric food in gaseous form absorbed through the leaves.

To strip the subject of confusion, it may be stated that, strictly, no *inorganic* matter can exist in the *structure* of plants or animals, because the moment it becomes obedient to the vital forces and is assimilated into the living structure, it is *organic*, whether it was originally a fixed substance, as lime, potash, &c., or a gaseous compound, as carbonic acid, or a liquid, as water, otherwise there could be no organic matter.

It is necessary to a clear understanding of what follows that the palpable distinctions should be kept in view. Failure in this has subjected the most eminent writers to the criticism of inferiors.

As Mr. Lawes' severe arraignment of the lamented Liebig. This great man understood the distinction here insisted upon, as well as any man on earth, and yet allowed himself to drift away from it into inextricable difficulty, if not confusion, by which Mr. Lawes was enabled to cast doubts on the learned Baron's mineral theory, by verbal criticism; the controversy degenerating into a mere play on words, the chief of which was the term *"mineral,"* carelessly and inaccurately employed throughout Liebig's works.

FREEDOM.

Neglecting his Opportunities!

A subscriber in Chester co., S. C., speaks thus of the *Farmer*, and shows that some one is hiding his light under a bushel: "The most valuable portion of your paper to me and our thinking men in this country is that which relates to the most valuable fertilizers and the best modes of their application. Our lands are generally much exhausted, and the best fertilizer I use is manufactured in your city, but it is not advertised or mentioned in your paper."

W. M. Hamilton, of the California State Grange, Patrons of Husbandry, organized a Delaware State Grange at Wilmington. John J. Ross, of Milford, is master, and fifteen subordinate granges participated. Delaware has been heretofore attached to the Maryland State Grange.

Can We Make a Season?

Messrs. Editors:—The present drought threatens the crops seriously. Oats will not grow; young clover is scorched by the sun; wheat is retarded; pasture is hardly forthcoming, and still a glaring sun during the day, and cold nights—almost approaching to frost. Now why do we not invite the rain, as we possess the means to do so?

It is a well-known fact that during the great Napoleonic battles, near Dresden and Leipsic, the rain was pouring down in torrents. The same fact has been observed during our civil war. Every great battle was followed by heavy rains. During the coronation ceremony of Frederick William IV., of Prussia, 110 guns were fired in quick succession, and immediately from a cloudless sky torrents of rain streamed down. I remember well how I had to run for shelter.—Now, why then, in this present dry season, do we not take this lesson, and invite the heavenly blessings down upon our thirsty fields. Let us ask the Goverment to thunder away at Washington and other places; the expense is a trifle, compared with the benefits. A. J.

Frederick Co., Md.

Cotton Manufactures.

The *N. Y. Financial Chronicle* says that the eight most important manufacturing States are Massachusetts, Rhode Island, Connecticut, Pennsylvania, Maine, New York, Maryland and Georgia. The names are given in their order of cotton consumption. Massachusetts used last year 438,000 bales, and Georgia used 40,000 bales. The State of New York uses but 13,000 bales more than Georgia, Ohio but one-tenth as much as Georgia, while Illinois, Iowa, Michigan, Wisconsin, Missouri, Kansas, California and Oregon do not appear in the list of cotton-spinning States at all. In Illinois, Iowa and Missouri there are a few mills which buy their yarn already spun and make it into cloth. The *Chronicle* says that the cotton mills of Georgia, Alabama and South Carolina are the most prosperous in the Union.

It appears that the number of spindles in the United States now is 9,415,383, against 7,114,000 four years ago,—an increase of 33 per cent. The increase of our home population has been, in that time, only 11 per cent.

A New York Guano Dealer.

The *Country Gentleman* in its issue of 20th ultimo gave warning that it had information that Mr. R. Balcazar, who has advertised extensively as possessing exceptional facilities for supplying Peruvian guano, in certain cases of remittances made him had neither sent the guano nor returned the money; and in that of the 27th, it says Mr. B. has written to explain that he has been obliged to suspend payment but that he hopes to pay his creditors in full eventually. The editors think his course in putting such remittances with funds of his own, and attempting to place the senders on the same footing as creditors to whom he owed other debts was neither fair nor honest.

Shipments of Cotton.

Edward Young, Chief of Bureau of Statistics, in a letter to Senator Merrimon, of N. C., gives the following facts:

Quantity of cotton *exported* from the United States during the fiscal year ending June 30, 1874, was 1,358,602,303 pounds, valued at the ports of shipment at $211,223,580 in currency; reduced to a gold standard, at $112 in currency for $100 in gold, to $188,592,483.

From the same source we learn, that the amount of *Sugar imported* into the United States was 1,594,345,000 pounds, of the value of $77,463,107 gold.

Mr. Young estimates the amount of money spent abroad by our citizens at $20,000,000 a year, or $800 each, on an average, for the supposed number of travellers, 25,000. As an offset to this, $25,000,000 are estimated to be brought into the United States by foreign immigrants, the number of whom, according to the official returns, was, for the past seven years, 2,620,750, making an annual average of 370,108—$68 was the average amount brought over by each immigrant.

CARE OF THE EAR.—The *Scientific American* thinks that the ear is quite as liable to injury from drafts of air as from water. The modern style of cutting the hair in men, and of arranging the hair of women, is much to be deprecated; because it was intended by nature that the hair should fall over the ear, and form thus a protection to it. But as we cannot throw down so great a goddess as fashion, we must use care and artificial means for the preservation of this delicate organ.

If sitting in a draft is unavoidable, the handkerchief should be applied to the ear exposed, or a pledget of cotton inserted within it. The ordinary manner of washing the face does no harm to the ear, because the canal leading to the drum of the ear is partially occluded by wax, and water does not penetrate far; but all swabbing of the ear, whether with dry cloth or lint moistened with hot or cold water or other fluid, is by no means to be advised, as it removes the wax, the necessary safeguard to the internal ear.

HOW TO AVOID COLDS.—An editorial in the *British Medical Journal*, on catching cold, concludes thus:

"The practical considerations which are the outcomes of this review of the pathology of colds are these: Never to wear wet clothes after active muscular exertion has ceased, but to change them at once; to meet the loss of the body heat by warm fluids and dry clothes; to avoid long-sustained loss of heat which is not met by increased production of heat; to increase the tonicity of the vessels of the skin by cold bath, etc., so educating them to contract readily on exposure, by a partial adoption indeed of the 'hardening' plan; to avoid too warm and debilitating rooms and temperatures; to take especial care against too great loss of heat when the skin is glowing; and to prevent the inspiration of cold air by the mouth by some protecting agent, as a respirator. We can readily understand how a respirator should be an effective protection against winter bronchitis in those so disposed."

The American Farmer.

PUBLISHED ON THE FIRST OF EVERY MONTH

BY SAML. SANDS & SON,

9 North street, near Baltimore street, Baltimore, Md.
(sign of the Golden Plow.)

SAML. SANDS, WM. B. SANDS, } Editors and Proprietors.

SUBSCRIPTION, $1.50 a year, in advance. To Clubs of five or more, $1.00 each. For $10, eleven copies will be sent.

For postage, 10 cents must accompany each name sent, whether singly or in clubs.

ADVERTISING RATES.

	1 *Mo.*	3 *Mo.*	6 *Mo.*	1 *Year.*
One Square, 10 lines.....	$ 1.50	$ 4.00	$ 7.00	$ 12.00
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Half Page.....	12.00	25.00	40.00	70.00
One Page.....	20.00	45.00	75.00	120.00

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Transient Advertisements payable in advance—all others quarterly.

Advertisements should reach us by the 20th of the month, to secure insertion in the succeeding issue.

JUNE 1, 1875.

Paris Green for the Potato Bug.

We call attention, with pleasure, to the advertisement in our supplement of Messrs. Wm. Davison & Co., manufacturers of this article. This house is one of the highest respectability, and their products may be fully relied upon.

The trade in this substance has grown to immense proportions. Through the West, its use for destroying the Colorado potato beetle is universal, and it is now also being applied to check the ravages in orchards of the canker worm and other insects infesting the leaves.

ROPP'S READY RECKONER is the title of a work, of a convenient size for the pocket, containing numerous tables for computing the value of grain, hay, stock, &c.; interest at different rates, contents of lumber, granaries, cisterns, and many other things with which a farmer is especially concerned, and the computation of which by ordinary methods often gives great trouble. Its author is C. Ropp, Bloomington, Illinois.

BY THE COURTESY OF PROF. E. B. PENDLETON, we have a copy of the proceedings of the Georgia State Agricultural Society at its meeting held in Thomasville, Georgia, February, 1875. Some idea may be had of the value of the papers read, from the extracts we give in this number of the *Farmer*. The attendance was large, and the proceedings interesting and spirited.

The Maryland Agricultural College.

From the proceedings of the Trustees, the results of which are given elsewhere in this issue, we are disposed to review our opinion, as expressed last month, of the impossibility of the present board reforming and rebuilding on a better and more substantial foundation this institution. This, from the fact that this board has done the very things we did not expect it to do, as well from the past record as from the known proclivities of some of its members.

It will be seen that no opposition was made to the participation in the business of the representatives of the State who were present; that an entire change has been made in the course of instruction to be hereafter pursued, and that *all* the present officers and professors have been notified to vacate their positions at the end of the present term. The Governor of the State has been made president,—an office, probably, intended hereafter to be a merely honorary one,—and the direct control placed in the hands of a committee, the chairman of which resides adjacent to the institution, and is a gentleman of active business habits, with some experience in public affairs, and, as we are assured, independent and untrammelled in every regard, and only anxious for the restoration of the reputation and usefulness of the college.

Steps have been taken to relieve the institution from its debt and a contraction of the scope of its operations determined upon, by which a corps of teachers, proportioned to the probable amount of work to be done, is provided. The board of trustees is now advertising through the daily papers that, "desirous of reorganizing the faculty with the view of making *Instruction in Practical Agriculture the prominent feature of the institution*, it invites applications from candidates for the professorships of agriculture, mathematics and English literature, and requests such applications to be forwarded to the board before the 9th of June, to College Station p. o., Md."

It is proposed, as we understand, to limit instruction at first to a few classes, and to require all incoming pupils to conform to the programme laid down, which will not, however, be fully determined upon until the induction of the new faculty. By this means the future course will be made homogeneous and harmonious, and the necessity avoided of providing instructors for numerous skeleton classes. Natural history, veterinary science, &c., will probably receive attention, for the present, from lecturers or visiting teachers.

Labor on the farm and in the garden will be again required, as was formerly the case, of all pupils.

The plan determined upon seems to embrace the features recommended by Mr. J. Howard McHenry in his letter in the *American Farmer* for April, combining at once a school for teaching the arts and sciences immediately connected with agriculture, practical instruction in its processes, an English and mathematical course, and a base broad enough for the erection thereupon of a system which shall include the higher branches, as there is room and demand for them.

In our judgment this was the only thing to be done, and the board evinces wisdom in its adoption.

We sincerely trust that this reorganization may be thorough and final, and that to the college will be thereby given a stability of purpose and distinctiveness of character which have long been lacking.

It is too late to consider this institution in any regard except in its relation to the public—to the *agricultural* public. The original stockholders are in the main thoroughly indifferent concerning it, and most of them, indeed, intended their contributions to be free gifts. Our farmers, however, have never ceased to regret the opportunities for elevating the standard of education of their class which have here been neglected, and if they have been apathetic, it is only that they considered it no affair or concern of theirs. We give some extracts from our correspondence of the past month,—only a portion of that bearing on this subject,—which would seem to show that they are beginning to take some interest in this subject. We hope that this will continue.

In every well-meant effort to upraise this institution of our State from its present condition, the movers will have the hearty aid and co-operation of *The American Farmer*. We are sincerely anxious to see it occupy a position as honorable and useful to our State as any other similar institution in the country.

Captain E. L. F. Hardcastle, of Dorchester, it is understood has not accepted his election, unanimously made, as a Trustee of the Agricultural College. We hope, however, that he may be induced by the general sentiment heard on every side to reconsider his intention to decline. His name was received with the most cordial signs of approval of his eminent fitness. A successful and practical business man, an intelligent and educated farmer, his participation in remodeling the college would encourage all to look for the very best results from his aid and counsel. We hope he may be willing to suffer some personal inconvenience to engage in this work.

Reapers and Mowers.

The Champion. Messrs. L. H. Lee & Co. is the only house here confining itself to a business in harvesters. Their quarters are at Nos. 54 & 56 Light st., where they have an immense stock of the Champions. The operations in this well-known machine elsewhere may be seen from the accounts given in another place of their enormous shipments.

Mr. A. G. Mott, offers a new candidate for the honors of the harvest, the "Peerless" Mower and Reaper, a machine said to have already gained a great reputation where it has been introduced. In some features it has very great advantages it is said over some of the older machines, which Mr. Mott will be glad to show and explain to all interested, at his works No. 40 Ensor Street.

Mr. J. C. Durborow is now the general manager for this department of the Kirby Machines, and has on hand a full stock of all patterns at No. 55 Light St. Mr. Durborow it will be remembered, is himself the inventor of the "Baltimore Self Rake," used on these machines; a very complete piece of mechanism.

Mr. Joshua Thomas, No. 53 Light St., still runs the "Buckeye," which he reports is this season considerably improved, and as ever fully up to the mark in competition with its rivals.

Messrs. Thos. Norris & Son, 141 W. Pratt St. keep in stock Woods' Machines, the popularity of which they tell us is undiminished.

The Grover and Baker Sewing Machine.—This machine, which is one of the oldest advertised in the pages of the *Farmer*, is a household word in thousands upon thousands of families, and having of late been much improved, it is more than ever deserving of the encouragement it receives. See the advertisement in this number.

One of the features of the amended postal law is that the Canada seedsmen can now send their seeds, by mail, all over the United States at just half the rates our own dealers pay. This is protection with a vengeance.

The American Engineer.—The success achieved by this journal, published by Messrs. G. H. & W. T. Howard, in this city, is shown by its enlargement from 12 to 16 pages. We are glad to see this evidence of its prosperity.

Sale of Horses.—The sale of trotting stock of Mr. Geo. G. Lobdel, of Wilmington, Del., advertised in the last No. of the *Farmer*, took place on the 18th ult. and was largely attended. Twenty-nine horses were sold aggregating over $6,000. Prices varying from $90 to $505.

Patrons of Husbandry in Maryland.

From a circular lately received from the Secretary of the State Grange we give a revised list of the officers of the State, county and district Granges, and the names of tho Executive Committee.

OFFICERS STATE GRANGE.

Master, Jos. T. Moore, Montgomery; *Overseer*, A. D. Woodruff, Princess Anne; *Lecturer*, Jas. S. Robinson, Anne Arundel; *Steward*, J. W. Corey, Kent; *Assistant Steward*, Thos. S. Iglehart, Anne Arundel; *Secretary*, Edwd. Hall, of B., Anne Arundel; *Treasurer*, J. N. Chiswell, Frederick; *Chaplain*, Joseph Barlow, Carroll; *Gatekeeper*, Wm. Hepbron; *Ceres*, Mrs. Joseph T. Moore, Montgomery; *Flora*, Mrs. J. E. Wilson, Montgomery; *Pomona*, Mrs. H. N. Lansdale, Frederick; *Lady Assistant Steward*, Mrs. J. W. Corey, Kent.

EXECUTIVE COMMITTEE.

Thos. F. Shepherd, *Chairman*, Carroll; Geo. Thomas, St. Mary's; Col. John R. Emory, Queen Anne's; Thos. S. Iglehart, Anne Arundel; Samuel Hinks, Frederick; Capt. E. L. F. Hardcastle, Talbot.

DISTRICT AND COUNTY GRANGES.

No. 1, Prince George's co., James Nichols, *Master*; C. C. Magruder, jr., *Secretary*; No. 2, Anne Arundel co., H. M. Murry, *Master*; Thos. Welch, *Secretary*; No. 3, Choptank, (Talbot, Caroline and Dorchester counties,) E. L. F. Hardcastle, *Master*; Wm. E. Barton, *Secretary*; No. 4, Queen Anne's, co., W. P. Turpin, *Master*; E. B. Emory, *Secretary*.

Valuable Recipes.

Peterson & Brothers have done a service to the community in republishing, with several hundreds of additional recipes, the "Queen of the Kitchen." These have been carefully compiled from old family recipe books which are regarded as heir-looms, many of them being nearly a century old.

A witty Bostonian has declared Baltimore to be "the Gastronomical Centre of the Universe." If this be so, "the Queen" is certainly entitled to speak with authority upon matters gastronomic, and in thus giving to the world at large these old Maryland Family recipes, she enables others to take advantage of the experience of those who were known as housekeepers "of credit and renown."

HOW TO KEEP BROOMS.—If brooms are wet in boiling suds once a week, they will not cut the carpet, last much longer, and always sweep like a new broom. To clean a very dusty carpet, set a pail of cold water outside of the door of the room where the carpet is to be swept; wet the broom in the water; then knock it, to get out all the drops; sweep a yard or so, then wash the broom by dipping it well in the water, and sweep again; continue this process, changing the water from time to time, as it becomes dirty. If done with care, this is an excellent manner of cleaning a carpet.

TO WASH LINENS.—Put in the water used for washing them, a little dissolved pipe-clay; it will give the dirtiest linens the appearance of having been bleached, and cleans them more thoroughly with one-half the lal or, and one-fourth the soap.

TO CLEAN GLASS.—This mode of cleaning fine glass gives it a great brilliancy. Take finely powered indigo, dip into it a moistened linen rag, smear over the glass with it, and then wipe it off with a perfectly dry cloth. As a substitute for this fine sifted ashes, applied by a rag dipped in spirits, will answer as well. Spanish white is apt to make the glass rough and injure it.

EXCELLENT BRINE FOR BUTTER.—Three pints of water, one pint of salt; boil it until the scum rises; then beat up the whites of eggs, two are enough, and boil all together, and take off the scum again. It will keep a firkin of butter sweet all Winter.

STAINING FLOORS.—Take equal parts of turpentine and linseed oil; stir in burnt umber to suit. After mixing them, try a little on a plank to see if the color suits; put the coloring on with a brush, rubbing it in well. Mix enough for one floor at one time.

This coloring can be put on by any one; it is not necessary to send for a painter.

FURNITURE VARNISH.—Equal parts of turpentine, linseed oil, and copal varnish. Mix them well together, and rub on the furniture with a flannel cloth.

TO STAIN FLOORS WALNUT COLOR.—Take boiled linseed oil and benzine, in equal quantities, and add burnt umber, ground in linseed oil, until you get the stain as dark as you desire. If you wish to stain one board light, and the other dark, alternating them light and dark, put on the light board the linseed oil and benzine, mixed, before adding the umber. For soft white pine floors, use a little more than half oil, and put a small quantity of raw sienna, and a little burnt sienna, in the oil and benzine for the light boards.

APPLE BREAD.—Weigh one pound of fresh, juicy apples; peel, core and stew them into a pulp, being careful to use a porcelain kettle or a stone jar, placed inside a kettle of boiling water; mix the pulp with two pounds of the best flour; put in the same quantity of yeast you would use for common bread, and as much water as will make it a fine, smooth dough; put it into a pan and place it in a warm place to rise, and let it remain for twelve hours at least. Form it into rather long-shaped loaves, and bake in a quick oven.

TO DRESS COCOANUTS.—In selecting the nut, shake it, to see if the water is abundant. If not, do not take it. It has lain so long that the water is absorbed, and the nut may be disagreeably tainted. Make holes through two of the "eyes" in the end of the nut and pour the water off and save it. Then break the nut with a hammer, peel out the pieces and put them in cold water. Pare off the brown skin and grate the white meat, letting it lie up light on the dish if you are to use it soon. If not, pack it away in a can and place it where it is cool.—*Science of Health.*

Good Words for the Farmer.

A friend in Nansemond co., Va., writes in sending a club: "I think so much of the *Farmer* that I cannot let my neighbors go without it so long as I can induce them to the contrary."

One in Queen Anne's, Md., says: "The rapid improvement of the *Farmer's* columns has been noticed by our farmers, and they all declare it to be the best agricultural paper taken by them. It gives facts, and facts from those who are farmers and who can be relied upon in their statements; its columns are not, as in many cases, written by men who base their remarks on books and whose conclusions are solely drawn from the imagination. Its contents are plain, concise, and can be digested by the uneducated as well as the educated. Hence it suits the farmers who are ignorant of the sciences of the present day."

Another in Albemarle co., Va., says: "The last No. of the *American Farmer* is replete with good things—*practical things*,—and that is just what our farmers want. We candidly aver that in our opinion, no periodical of its class surpasses it in this, or in general topics interesting to farmers and fruit-growers."

Another in Caroline co., Md., writes: "Every farmer, and every man who tills an acre of ground, ought to read it."

A reverend friend in Cumberland co., N. C., says, in sending a club: "I will secure as many as I can. I work without any view to compensation, except that of a consciousness of aiding a good cause."

A friend in Northumberland co., Va., to whose friendly offices we are year after year indebted for handsome clubs of subscribers, says: "I am ready to aid all I can in the way of circulating your time honored and invaluable journal among our people, who seem to value each year more and more its practical and valuable pages. It has very deservedly become very popular with us and we look forward with much pleasure to the beginning of each month for a new copy."

A gentleman in Granville co., N. C., renewing his own subscription and accompanying it by a new one writes: "I find your periodical a most invaluable assistant to the farmer. One receipt for the preparation of a fertilizer is worth many times the price of subscription. I will most cheerfully get up a club of subscribers for the *Farmer* if it be practicable."

Another sending a club from Fairfax co., Va., says: "The *American Farmer* is highly esteemed by all who have taken it. One says the French correspondence is worth a year's subscription. Another is captivated with 'Freedom.' All the correspondence is of a high order, which, together with the great experience of the able editors, makes it the most desirable farmers' guide for this section that is published."

A subscriber in Amherst co., Va., writes: "I cannot afford to do without the *Farmer*. Its spirit and contents are all that could be desired. I read it with as much pleasure and benefit now in my humble log cabin, as I did a few years ago in the beautiful and loved home which I was compelled to sell."

Another letter from same county, received by same mail, says: "I think your paper the best of its kind for the South."

From among many kind notices of our press friends, we give the following:

"It is the best publication of the kind in the United States."—*Bedford (Va.) Sentinel.*

"The oldest agricultural publication in the United States, and one of the best. Its matter is peculiarly applicable to this section, and would be a valuable help to our farmers."—*Harrisonburg (Va) Commonwealth.*

"The last number of this excellent monthly is at hand—filled to the brim with instructive lessons to the farmer and to all who thirst for such practical knowledge as leads to the reader's good and the development of Southern resources. Few farmers or practical men in Carolina are too poor to take it. Generally they are too poor to do without it. Now is a good time to subscribe for it."—*Greenville, (S. C.) Republican.*

"If you want to learn how to farm, and what improved implements to buy; how to raise stock, and the best breed; how to make the garden pay; how to get a scientific knowledge of farming, and how to apply it; how to preserve health, and prepare healthy food, palatable and nice, send $1.50 to Messrs. Sands & Son, No. 9, North St., Baltimore."—*(Va) Holston Advocate.*

"Every farmer should subscribe for an agricultural paper, and there are few better than this."—*Balto. Co. (Md.) Herald.*

One in Halifax Co., N. C., writes: "Every number of the *Farmer* contains that which, if carefully read and remembered, is worth to the agriculturist the annual subscription."

Another in Worcester Co., Md., says: "I will get you as many subscribers as possible. Your paper is worthy of it and increases number by number in usefulness and interest."

Another from Norfolk Co., Va.: "I assure you the appearance of *The American Farmer* on my table, when the mail is received from town, gives me more pleasure than the expenditure of my money—for at least that day—so club rates are not desired by me."

One in Richmond Co., N. C., sending ten subscriptions, says: "I wish I could send more, and will if I can, as I think it is the best paper published."

A subscriber in Montgomery Co., Tenn., to whom we sent a bill for back subscription, writes: "I have been very remiss in my duty to you; am sorry for it The *Farmer* has contributed largely to my agricultural information, and I cannot do without it. The loss of its circulation would be a public calamity. Find enclosed $8, from which pay the two years' back subscription, and credit me with balance as part of that which I hope to pay for its future able help."

"One of the most varied and interesting farm journals we see. It is well patronized by Agricultural Clubs, and this is always the most interesting feature to a practical farmer. Grass, grain and stock seem to be its ruling features."—*Oxford (N. C.) Leader.*

A friend in Catawba Co., N. C., sending us a club, kindly writes: "The *Farmer* is complete in all departments. I am a farmer and a granger, and so are the above subscribers, and the leading ones in this neighborhood. The *Farmer*, in my judgment, is the best farm journal in the United States, and I will do all I can to spread it and find it a place in the farmer's library. We are all grangers here and mean business. Farming is improving here, and a better system is the word with us, and we want *The American Farmer* to aid us."

A gentleman at the head of an important public institution in another State, writes: "I have read the numbers of the *Farmer* sent me, and must say they contain more valuable reading matter than any monthly periodical on our table."

A subscriber in Frederick Co., Md., writes: "This is my first year with the *American Farmer*, but I am so well pleased with it that I have discontinued all others. It best meets our wants as farmers."

"It is crammed full of good solid information for the farmers, and we would be glad to see it in the hands of every land-owner in *Southside Virginia*."—*Chase City (Va.) Southside Virginian.*

"Decidedly the best agricultural monthly that comes to this office. We advise those in want of a first-class and thoroughly reliable periodical, wholely devoted to the farmer's interests, to subscribe to it."—*Onancock Eastern Virginian.*

"The farmer who pays the subscription price of this paper for a year and reads it, will find that he has made a good investment."—*Christian Sun, Suffolk, Va.*

Imports of Sugar.

The imports of sugar into France, Austria and Germany, are very inconsiderable, as the supply in those countries, as well as in Russia, is derived from their own manufacture from the Beet Root—in the latter, the sugar imported amounted in value, for 1871, to $16,790—whilst the amount of *foreign* sugar consumed in the United States, *per capita* of population—the estimated number of the population at the middle of the period being 42,280,000—was, in weight, 37 7-10 pounds, and in value, $1.83 U. S. gold. This does not include molasses or melado, a large quantity of which is annually imported and consumed. This is an important point to be considered: can we not, either by the cultivation of the sugar cane or the beet root in the United States, save to the country the exportation of $77,464,107 in gold?

Poland-China Hogs.

As *apropos* to a suggestion made elsewhere in this number, we would say that we have several inquiries for these, and parties having them for sale would do well to advertise them in the *Farmer*. One of our inquiries, from Queen Anne's Co., Md., writes: "I don't think there have been any advertisements of these breeds (Poland-China and Suffolk) in the *Farmer* for some time past, else I would have seen them, for I read it from cover to cover, and think my time is profitably spent in doing so. It is ever a welcome friend to me, and I hope it may continue to prosper years hence."

Champion Reapers and Mowers.

[*From the Baltimore Gazette.*]

The branch house in this city for the sale of these machines is that of Messrs. L. H. Lee & Brother, Nos. 54 and 56 Light street. The firm deals exclusively in the Champion, and can thus give to its sale and the orders of farmers greater and more immediate attention.

Being a branch house, they sell at the same prices as are charged at the manufactory, and jobbers' rates are thus saved.

Their establishment on Light street is the largest in Baltimore, embracing two large stores, of four stories each, and so arranged and furnished as to give every facility for their business. Between eight hundred and nine hundred machines are now in store, and personal examinations by agriculturists visting Baltimore are cordially invited.

Four years ago the Messrs. Lee & Brothers located in Baltimore, and have succeeded in a comparatively brief period in building up an immense business. They are thoroughly practical and enterprising business men, and give to the sale and introduction of the Champion the utmost personal attention. The advantages of the Champion are undoubtedly great, and its rapid sales afford the best proof that it is fully appreciated by all who give it a trial,—and a trial is all that is asked.

A Grand Achievement.

Immense Shipment of Champion Reapers and Mowers.

EXCELLING IN MAGNITUDE, VALUE AND DISPLAY ANY SHIPMENT OF AGRICULTURAL IMPLEMENTS EVER MADE ON THE GLOBE.

[*From the Ohio Farmer, April* 10, 1875.]

Time is working miracles in the development and improvement of agricultural machinery, and the unfamiliar mind is continually being startled and amazed at the giant proportions that the manufacture of implements for the farm is so rapidly assuming. No other branch of this interest is bringing out this fact more prominently than the manufacture of the harvesting machine; and we may here add that there is no other of so vital importance to the agricultural industries of any grain or grass-growing country. That the manufacturers of the Champion at Springfield, Ohio, are entitled to the head and front of this great interest of the world, is a fact too apparent and too fully demonstrated to admit of a question. For the purpose of transferring to the general reader some idea of the magnitude of the demand and use of this greatest of harvesting machines, we will briefly allude to just

ONE SHIPMENT

made by one of the three immense concerns on Friday of last week, 2d instant, when

TWO FULL TRAINS

left their works at Springfield, made up exclusively for, and loaded entirely with, Champion machines, destined for distributing points in the Southwest alone. This shipment numbered just

one thousand machines, and aggregated an invoice or selling value of over one hundred and seventy-five thousand dollars, making, undoubtedly, the largest and most important single shipment of agricultural implements ever made in the world. The two trains numbered forty-four fully loaded cars, all of which, together with the engines, were elaborately trimmed with national flags and emblems, and each car conspicuously labeled, giving information as to its contents and destination, presenting a magnificent and truly exciting scene to the thousands who witnessed their departure and speedy course over the C. C. C. & I. R. R. out of the State. When it is considered that this is but a slight augmentation of their every-day shipments of Champion machines from Springfield during this season of the year, and that the day previous, and later this same day, a large number of car-loads were started in opposite directions, some conception can be formed of the demand for these well-tried and every-where popular machines. Messrs. Warder, Mitchell & Co. shipped for their Pacific coast agency in one week twenty-eight full car-loads, on which the item of freight, at through car-load contract price, amounted to eleven thousand and five hundred dollars, and the orders on this firm from Europe will keep them shipping at least two car-loads each day for from sixty to eighty consecutive days; and their South-American trade—only very recently opened—promises to be equally extravagant in its demands. In fact, from every quarter of the civilized globe, wherever the Champion has been shown and tested, comes this unquestionable assurance of their superior practical value; for rapidly increasing demand, from both old and new territory, speaks in loud and significant terms of the success it is meeting with, and tells the story of its triumph in the field and meadow in a manner that cannot be questioned or misconstrued. It is the undivided verdict of all who have given each of the leading machines a fair and practical trial, that none made so perfectly combine all the good qualities as the Champion, and on its merits alone has it so rapidly and triumphantly trodden the upward road to the leading position—far in advance of any and all others of the world—at the public exhibition, in the field trial, in actual use in the hands of the farmer, and last, but by no means least, in the estimation and appreciation of the great American and European husbandman, who judges things by what they accomplish, and the return they give him for the outlay they cause him. As we have before stated, every calculation is completed for the manufacture of thirty thousand Champion machines for the season of 1875, and it is quite evident at this time that even this unprecedented number will leave them unable to supply the demand before the end of the season—a position with which they are familiar, as it has been repeated every season since they first put the Champion on the market, and to avoid which seems beyond human energy and calculation.

Three mammoth concerns are pushed to their fullest capacity, and present to the visitor an interesting and wonderful scene, with their myriads of highly skilled mechanics, each manipulating some modern machinery of the latest improved standard, turning out with lightning rapidity and unvarying accuracy the many bolts, plates, bars, braces, wheels, rods, etc., that so perfectly come together to form the machine. They manufacture nearly everything from the raw material, and are now consuming every day over fifty tons of pig iron, thirty tons of wrought iron, four tons of malleable iron, and over eleven thousand feet of lumber,—all of which make only one day's meal for the capacious maw of these monufactories, and is seemingly almost instantly digested into machines to perfectly and rapidly garner the products of the soil with which to feed the teeming millions that populate the face of this broad domain.

Baltimore Markets, May 29.

The quotations below are Wolesale Prices.

Breadstuffs.—*Flour.*—Demand light. We quote prices as follows: Howard St. Super, $4.50@5.00; do. Extra, $5.12@5.50; do. Family, $5.75@7.00; Ohio and Indiana Super, $4.50@5.00; do; Extra, $5.12@5.75; do. Family, $6.00@7.00; City mills Super, $4.50@5.00; do. Rio brands Extra, $6.75; City Fancy brands, $8.25. Fine flour, $4.00; Rye flour, $5.25@5.75; Corn Meal, Western, $4.00@4.25; City, $4.50.

Wheat.—Market dull and heavy, with prices tending downward. Quotations are as follows: Southern red, good to prime, 136@138 cents; do. amber, 140@142 cents; Western prime red, 134@136 cent; do. amber, 138@139 cents.

Corn.—Dull and weak. We quote Southern white, 83@84 cents; do. yellow, 75 cents; Western mixed, 75 cents.

Oats.—Quiet with prices lower. We quote Southern bright at 82 cents; Western bright, 74 cents; do. mixed 73 cents.

Rye.—Dull with prices declining and quotations at 114@116 cents.

Broom Corn.—Quiet. Choice Hurl, 11¼@12 cents; medium green, 10¼@11 cents.

Cotton.—Market flat and prices tending down. Quotations are, Middling, 15⅜@15¼ cents; low middling 15¼@15¼; good ordinary, 14¼@14¾ cents.

Live Stock.—*Beef Cattle.*—In fair demand. Quotations are for best on sale 6¼@7¼ cents; that generally rated first-class, 5¾@6¾ cents; medium or good fair quality, 5@5¼ cents; ordinary thin Steers, Oxen and Cows, 3½@5 cents.

Hogs.—Supply fully up to the demand, with prices lower. Common and small Bacon hogs, 9½@10¼ cents; fair to good fat hogs, 10¼@11 cents. Litters hard to sell at any figure.

Sheep.—Receipts larger than demand calls for. Quotations are given at 4@5¼ cents. Lambs dull at $2.50@4.50 per head.

Mill Feed.—City Mills Middlings and Brownstuff $28; Western do. $24@26 ₹ ton.

Provisions.—Dull and tendency downwards. Bulk Shoulders 9 cts.; Clear Rib Sides 12 cts. Bacon Shoulders 9¼ cts.; Clear Rib Sides 12¾ cts. Hams 14¼@15 cts. Lard 15¼ cts. Mess Pork $21.00@21.5. *Butter.*—New York tubs, 27@28 cts. for select; Western 26@27 cents. *Cheese.*—New York Factory 14@14¼ cts.; Western, new, 13@14 cts.; old 14¼@15 cts.

Rice.—Carolina 7¼@8¼ cts. Rangoon 6¼@7 cts.

Salt.—Ground Alum $1.15@1.25; Fine $2.10@2.15; Turk's Island 35@40 cts.

Tobacco.—Receipts light; market firm. Maryland, frosted and sound common $6.50@7 50; medium dull,—$7.50@8.50; leafy brown $8.50@11.00; bright red to yellow $11.00@18.00; fancy yellow $20.00@30.00. Virginia, common to good lugs, $9.50@12.00; common to medium leaf $10.50@14.00; good to fine leaf $14.50@18.00; selections $19.00@23.00.

NEW ADVERTISEMENTS.

A. G. Mott—Peerless Mower and Reaper.
John T. Newman—Furniture, &c.
Hull, Matthews & Co.—Commission Merchants.
O. A. Winchester—Shirts.
A. E. Warner—Silver Ware, Rich Jewelry, &c.
W. Davison & Co.—Paris Green.
W. A. Myers—Eggs for Hatching.
Cooper—Eggs for Hatching.
Cooper—Ayrshires for Sale.
Editors American Farmer—Jersey Cows for Sale.

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NEW PATENT LAWN MOWER.

Just out. The most Simple, Durable and Cheapest in the market.
Runs easy in high or low grass.
☞ Send for Descriptive Circular.

KEITH & KELSO, Agents,
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JERSEY COWS FOR SALE.

For sale low, two fine young Jersey (or Alderney) Cows, of undoubted purity of blood, but not in the Herd Register. Both lately fresh.
Apply to
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EGGS FOR HATCHING.

Having spared neither time nor expense to procure the best "Partridge Cochins" and "Dark Brahmas" that could be got in England and America, I feel safe in saying my Flock is second to none in America, and I have lowered the price of eggs to $2.50 per setting, (13 eggs) which is one-half less than their regular price.
Address,
T. S. COOPER,
"LINDEN GROVE." Coopersburg, Pa.

P. S.—My mode of packing eggs insures their safe carriage.
☞ Orders solicited and satisfaction guaranteed.
je-1t T. S. C.

W. A. MYERS,

New Oxford, Pa.

Will spare EGGS FOR HATCHING, from his choice stock of Light and Dark Brahmas, White, Buff and Partridge Cochins, W. Leghorns, White Holland and Bronze Turkeys.
☞ My stock is unsurpassed, and includes many prize winners. Send stamp for Price-List. ap-tf

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THE BEST
HORSE HAY-FORK.
Descriptive Catalogue Sent Free.
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Warranted to spread evenly any desired quantity per acre of fine and reasonably dry fertilizer. It is an improvement on the Thornburg & McGinnis Spreader, retaining the oscillating and patented features of that, and greatly improved in simplicity, and perfectly adapted to regulate the sowing of any desired quantity, and to prevent the clogging of damp material.

PRICE REDUCED TO $110.

☞ Write for Circular to

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THE "PEERLESS" MOWER AND REAPER,

Built by C. RUSSELL & CO., CANTON, OHIO, and sold in Baltimore, by the Agent, A. G. MOTT, is truly a first-class HARVESTER. We append a few lines in commendation, by a practical man :

FREDONIA, N. Y., October 8th, 1874.

C. Russell & Co.—Having waited for years for a good Combined Mower and Reaper to appear in the market—one that should be commended not only as a good mower but also as a good reaper—one that could be relied upon for cutting all kinds of grain, and especially for reaping sowed corn—I was fortunate enough to hear, last winter, of the Russell Peerless as being the ideal machine for which I had been anxiously looking. Now let me say to all whom it may concern, that in July last I ordered a Russell Peerless Machine, No. 1, on trial, with the condition that if it worked well I would buy it. It more than met my expectations. I have cut one hundred and fifty acres of grain and thirteen of sowed corn with it, reaping for more than a dozen men, all of whom were pleased with the perfect manner in which it did their work. One very heavy piece of oats which I cut was partly lodged, so much so that it could not be cradled decently, but the reaper went through it, cutting the lodged as well as the unlodged in so perfect a manner that some of the spectators said "that is a perfect machine." One man, having a twelve-acre piece of oats which he was in a hurry to have cut, engaged a Wood Reaper together with mine to cut it. On arriving at the field it was found to be a green sward, and having so many dead furrows that the Wood machine backed out and could not be induced to take the chances with the Peerless, which cut the field entire, doing a good job, coming out all right and ready for another engagement. On hearing the Peerless Reaper was going to cut a very heavy piece of sowed corn, some men went up as spectators to see it "go to the shades," (as they expressed it); no reaper in their opinion could stand to go through such a piece of corn as that. The corn was eight feet high, and s ood very thick. To add to the dangers, the wind was blowing quite briskly. But the Peerless went in triumphantly, clearing the track before it. After waiting two hours to see it *cave*, the spectators gave it up, some of them saying, "you can *underbrush* with that machine." Suffice it to say, the field was cut and done in good style, the machine coming out ahead of all expectations. Besides all this reaping, I mowed one day with the Peerless and found it to be a first-class mower. I would say to all wanting the best reaper and mower in this or any other market, get the Russell Peerless. It is easy, light, and without any side draft, not even in cutting the heaviest corn. Again, I say the best is the cheapest. Get the Peerless.

1t JOHN MILLER.

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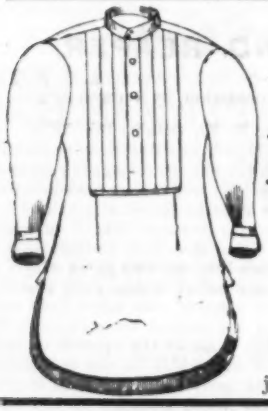

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(UP STAIRS.)

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Having attended the Ayr Cattle Show held at Ayr, Scotland, April 28th, 1875, I selected in person some of the finest and best-milking Ayrshires that I could find, and offer for sale at reasonable prices, all Heifer and Bull calves, which, were I not pressed for milk for young Pigs, I would not sell at any price, as they are bred by the best breeders in Scotland,—such as the "Duke of Buccleuch," and the celebrated Ayrshire breeder John Fleming, Esq., of "Meadow Bank," and others. At present writing, May 17th, 1875, they are from one to nine weeks of age.

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WE MANUFACTURE FOUR GRADES:

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Packed in barrels, half-barrels, 100 lb. kegs, and 14, 28 and 56 lb. Iron Cans. We have thoroughly tried it, and found it effectual and certain, if used as recommended by us:

Take 2 ounces of "Strictly Pure," or 2¼ ounces "Chesapeake," or 3 ounces "Potomac, or 3½ ounces "Patapsco" to 1 pound of flour; mix the flour with 3 gallons of water; strain the lumps out, then add the Paris Green; use a watering pot to sprinkle the plants, stirring occasionally while applying. To an acre of plants, it will require from 2 to 3½ pounds of Green, according to quality used. **For sale to the Trade only**, by

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Cabbage Plants in variety, Lettuce Plants,
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Sent safely by express to any part of the country. Prices on page 36 of our Catalogue for 1875.

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ORCHILLA GUANO, AA—rich in Bone Phosphate and Alkaline Salts..$30
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THE WISNER IMPROVED
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GARDEN AND FIELD SEEDS,
WARRANTED FRESH AND GENUINE,
of the latest and best varieties, having
no old stock on hand.

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We respectfully call the attention of FARMERS, GARDENERS and PLANTERS to our NEW and complete stock of IMPLEMENTS, SEEDS, &c., viz: The **Geisers Improved Thresher and Cleaner,** Reapers and Mowers, Horse Powers, improved, Patent Screw Propellors and Masticators for cutting Hay, Straw and Fodder, Virginia Corn Shellers, Double and Single-Spout Corn Shellers, Cider and Wine Presses, Bickford & Huffman Grain Drill, Buckeye Sulky Cultivator. The Southern iron-brace Grain Cradle, Wheat Fans, Improved Corn Planters, Lawn Mowers, Plows, Harrows, Cultivators, and all kinds of Farming Implements, &c.

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ap-6m **No. 38 N. Paca Street, Baltimore, Md.**

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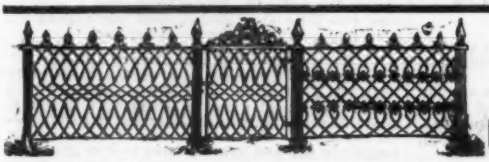

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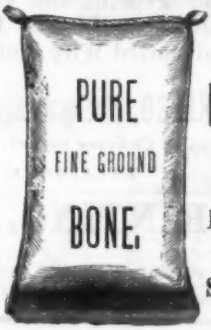

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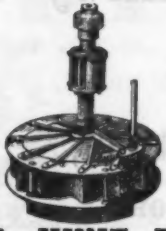

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It has been greatly improved since last season, and, it is claimed, will in a single year

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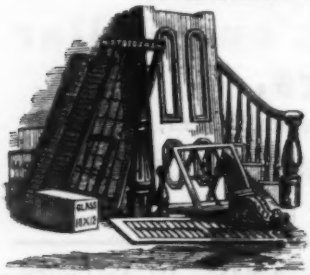

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(from crude stock gathered daily from the Butchers in this market, with whom we have yearly contracts,) coupled with the fact of our inability, as to former seasons, of filling all orders sent to us, has demonstrated the advisability of our making a considerable outlay so as to meet demands upon us, and think we are now situated to please all that may favor us with a call. Thankful for past favors, we hope in the future to merit a continuance of the same.

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This, with its great reputation before it, has won new laurels this year which must convince every farmer of its superiority. No choking where bright and smooth. No labor to plowmen. One-third less DRAUGHT to the team. Thorough burial of the weeds, grass, &c. Great STRENGTH, durability and economy, and complete pulverization of the soil. Warranted as represented, or to be returned. Send for Catalogue and Price-List.

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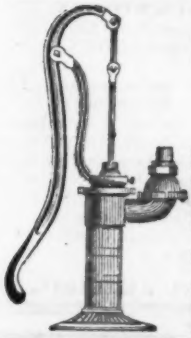

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jan-1y